

Evaluating the Effectiveness of the 2001–2002 NASA CONNECT™ Program

Thomas E. Pinelli

Langley Research Center, Hampton, Virginia

Kari Lou Frank and Matthew A. Lambert

College of William and Mary, Williamsburg, Virginia

Amy C. Williams

Old Dominion University, Norfolk, Virginia

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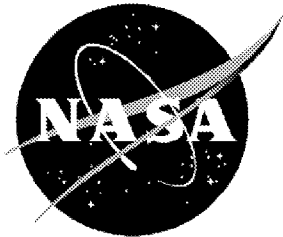
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Thomas E. Pinelli

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Amy C. Williams

Old Dominion University, Norfolk, Virginia

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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Summary

NASA CONNECT™ is a research and standards-based, integrated mathematics, science, and technology series of 30-minute instructional distance learning (television and web-based) programs for students in grades 6–8. Each of the nine programs in the 2001–2002 NASA CONNECT™ series includes a lesson, an educator (lesson) guide, a student activity or experiment, and a web-based component. In March 2002, a self-reported survey booklet was mailed to a randomly selected sample of 1,000 NASA CONNECT™ registrants. In all, 191 surveys (152 usable) were received by the established cut-off date. Most survey questions employed a 5-point Likert-type response scale. Survey topics included (1) instructional technology and teaching, (2) instructional programming and technology in the classroom, (3) the NASA CONNECT™ program (television, lesson guide, classroom activity, web-based activity, and web site), (4) classroom environment, and (5) demographics. About 70 percent of the respondents were female, about 50 percent identified “teacher” as their present professional duty, about 70 percent worked in public schools, and about 45 percent held a master’s degree or master’s equivalency. Notably, the respondents to the 2001–2002 NASA CONNECT™ survey represent a more diversified demographic group than last year. Regarding NASA CONNECT™, respondents reported that (1) they used the nine programs in the 2001–2002 NASA CONNECT™ series; (2) the stated objectives for each program were met; (3) the programs were aligned with the national mathematics, science, and technology standards; (4) program content was developmentally appropriate for grade level; and (5) the programs in the 2001–2002 NASA CONNECT™ series enhanced or enriched the teaching of mathematics, science, and technology.

Introduction

The NASA Langley Research Center’s Office of Education (OEd) has the primary responsibility within the Agency for distance learning and the integration of instructional technology. Through the NASA Center for Distance Learning, the OEd has developed a suite of five distance learning programs. Collectively, the goals of the four instructional broadcast programs include (1) increasing educational excellence; (2) enhancing and enriching the teaching of mathematics, science, and technology; (3) increasing scientific and technological literacy; and (4) communicating the results of NASA discovery, exploration, innovation, and research. NASA CONNECT™ is televised nationally and is used by almost 230,918 educators representing over 8,154,854 students. More information about NASA CONNECT™ can be found at the following web site: <<http://connect.larc.nasa.gov>>.

Evaluation is critical to any program’s success. To determine the effectiveness as well as the credibility and validity of the series, NASA CONNECT™ registrants are surveyed annually. This report contains the quantitative and qualitative results of our attempt to determine the effectiveness of the 2001–2002 NASA CONNECT™ program.

Overview of NASA CONNECT™

Produced by the Office of Education at NASA’s Langley Research Center in Hampton, Virginia, NASA CONNECT™ is designed to increase scientific literacy, improve the mathematics and science proficiency of students in grades 6–8, and increase the competency of mathematics and science educators. The goals of this research and standards-based, Emmy® award-winning distance learning program include (1) showing students the application of mathematics, science, and technology on the job; (2) presenting mathematics, science, and technology as disciplines that require creativity, critical thinking, and problem-solving skills; (3) demonstrating the integration of workplace mathematics, science, and technology as a collaborative process; (4) raising student awareness about careers that require mathematics,

science, and technology; and (5) overcoming stereotyped beliefs by presenting women and minorities performing challenging engineering and science tasks.

The 2001–2002 NASA CONNECT™ series received numerous awards for program achievement, educational content, and video production. Two programs from the 2001–2002 CONNECT™ series received Emmy® Awards. *Safety First* received an Emmy® from the San Francisco/Northern California Chapter (NATAS) for best Educational/Instructional Program, and *The Future Flight Equation* received an Emmy® in Children’s Programming from the Washington D.C. Chapter (NASTAS). The 2001–2002 NASA CONNECT™ series, in its entirety, received from the United States Distance Learning Association an award for Excellence in Distance Learning Programming for grades K–12. The series itself or individual programs in the series also received sundry awards of distinction and excellence in fields spanning creativity/videography to talent/on-camera, and web site graphics.

Now in its eighth year of production, NASA CONNECT™ is the oldest series in the NASA K–12 distance learning initiative. In addition to the goals listed in the Overview, NASA CONNECT™ also seeks to create opportunities for parental and community involvement, attempts to link formal education (e.g., the school) with informal education (e.g., libraries, museums, and science centers), and also to link pre-service and in-service education. The NASA CONNECT™ model is research based, instructional rather than educational, result oriented, learner centered, technology focused, and feedback driven. NASA CONNECT™ is free to educators; however, educators must register to receive the lesson (teacher) guides.

There are four ways to register for NASA CONNECT™:

- (1) E-mail <connect@edu.larc.nasa.gov>
- (2) online <<http://edu.larc.nasa.gov/connect/>>
- (3) telephone 757-864-6100
- (4) U.S. mail: NASA CONNECT™
Mail Stop 400, Office of Education
NASA Langley Research Center
Hampton, VA 23681-2199

The number of teachers registering for and the number of students viewing each program must be specified.

Rights and Responsibilities

NASA CONNECT™ is a U.S. Government program and is not subject to copyright. No fees or licensing agreements are required to use programs in this series. Off-air rights are granted in perpetuity. Educators are granted unlimited rights for duplication, dubbing, broadcasting, cable casting, and web casting into perpetuity, with the understanding that all NASA CONNECT™ materials will be used for educational purposes. Neither the broadcast nor the lesson guide may be used, either in whole or in part, for commercial purposes without the express written consent of the NASA Center for Distance Learning.

Production and Delivery

Programs in the 2001–2002 series comply with the specifications found in the National Educational Telecommunications Association (NETA) Common-Sense Guide to Technical Excellence. Programs run 28 minutes and 30 seconds. Each program is broadcast (delivered) via KU- and C-band satellite transmission. Public Television System (PBS) affiliates, statewide television systems such as T-STAR,

district wide television systems, and cable access channels carry NASA CONNECT™. NASA CONNECT™ is also web cast via the NASA Learning Technology Channel. The NASA CONNECT™ web site has the satellite coordinates and broadcast dates and times.

Availability

For a minimal fee, educators can obtain a video copy of NASA CONNECT™ and print materials from the NASA Central Operation of Resources for Educators (CORE). Copies and print materials are also available from the NASA Educator Resource Center (ERC) URL <<http://spacelink.nasa.gov/ercn>>

NASA CORE
15181 State Route 58 South
Oberlin, OH 44074-9799
Phone: (440) 775-1400
Fax: (440) 775-1460
E-mail: nasaco@leeca.esu.k12.oh.us
URL: <<http://core.nasa.gov>>

Importance of Evaluation

Formative and summative evaluation is critical to any program's success. A 2001 CEO Forum School Technology and Reading Report states, "[a]ssessment should become an ongoing part of instruction to inform and enhance teaching and learning and to promote student achievement" (CEO Forum, 2001). NASA CONNECT™ is a tool for enhancement and enrichment; the only way to gauge the effectiveness of that tool is to assess how classroom teachers are using it. Evaluation is important for numerous reasons and plays an important role in the evolution of distance education (Hawkes, 1996). First, evaluation improves the credibility and validity of a program (Wade, 1999). Second, evaluation can be used to make changes in the program (Ramirez, 1999). The ability to modify educational programs is particularly important because of the dynamism inherent both in education and technology. According to Dr. Lawrence T. Frase, Executive Director of the Research Division of Cognitive and Instructional Science at the Educational Testing Service, "The major issue for educational technology in the next millennium will be the effectiveness of its adaptation to social, scientific, and political change" (*THE Journal*, 2000). Third and finally, evaluation can help determine the effectiveness of a program (Hazari and Schnorr, 1999). Because of the wide array of information that can be reaped from the evaluation process, the Office of Education conducts an ongoing quantitative and qualitative assessment of NASA CONNECT™.

The Office of Education continues to develop new methods of evaluating NASA CONNECT™. The 2001–2002 NASA CONNECT™ season is the fourth one that can be evaluated from a longitudinal perspective (by comparing the 2001–2002 NASA CONNECT™ evaluation data with the 1998–1999, 1999–2000, and 2000–2001 NASA CONNECT™ evaluation data). This basis for comparison will provide the Office of Education with a more realistic benchmark from which to evaluate the NASA CONNECT™ series. Moreover, national data concerning teacher demographics, classroom environments, and teacher perceptions of instructional technology have also been infused into the 2001–2002 NASA CONNECT™ evaluation report and allows the data received through the NASA CONNECT™ evaluation process to be compared to other national studies. In future seasons, the Office of Education may seek to expand evaluation to also include classroom observation by skilled observers and student feedback by means of short surveys. In summary, the Office of Education is continually striving to improve the evaluation process by creating more diverse and in-depth measurement techniques. As stated

by Michael Hawkes, “[b]y using an array of evaluation techniques and including everyone involved in the delivery of distance learning (parents, teachers, students) in data collection activities, evaluation tasks will not appear as ominous as they once did. More importantly, school leaders will be able to assess whether distance education technologies are part of the solution to improved learning and instruction” (p. 33).

Methodology

A sample of 1,000 registrants was randomly drawn from the NASA CONNECT™ database. A self-reported survey/questionnaire was mailed to the sample group in early March 2002. The survey contained 120 questions, 10 of which dealt with demographics (appendix A). Those receiving the survey could select from three options: (1) they could complete the survey and return it, (2) they could write “not applicable” on the survey and return it, and (3) they could ask to receive a free copy of the final assessment report. A total of 152 usable surveys were received by the established cut-off date. Additionally, 39 surveys marked “not applicable” were also received by the established cut-off date. Reasons given for not completing the survey were logged in the database (appendix B). The overall response rate for the 2001–2002 NASA CONNECT™ evaluation project was approximately 13 percent.

In addition to the quantitative data collected, the Office of Education also recorded all qualitative data that were received during the 2001–2002 NASA CONNECT™ season. These comments came from the evaluation booklet, e-mail correspondence with educators, traditional mailings to educators, and telephone conversations. Comments were divided into two categories: Responses to Qualitative Questions in the 2001–2002 Evaluation Booklet (appendix C) and Unsolicited Qualitative Comments (appendix D). The qualitative data collected were also incorporated into the changes suggested for the 2002–2003 NASA CONNECT™ season.

Demographics

The evaluation booklet contained a variety of demographic questions, the answers to which could be used to establish the respondents’ profiles, the classroom environment, and teacher/student computer use. Demographic findings for survey respondents follow:

- 75 of the 109 respondents were female.
- 41 of the respondents were located in suburban school districts, 39 in rural school districts, and 28 in urban school districts.
- 90 of the 152 respondents identified “classroom teacher” as their present professional duty.
- 78 of the 109 respondents worked in a public school.
- 52 of the 111 respondents held a master’s degree or master’s equivalency.
- 90 of the 108 respondents identified themselves as Caucasian.
- The mean and median ages of the respondents were 45.82 and 47, respectively.
- The mean and median “years as a professional educator” were 13.29 and 11, respectively.
- 108 of the 109 respondents owned a personal computer.
- 68 of the 109 respondents indicated they were members of a professional (national) mathematics or science educational organization.
- The mean and median number of years respondents have used NASA CONNECT™ were 1.15 years and 1 year, respectively.

Presentation of Data

The survey questions were divided among nine topics. The respondents were asked to react to questions about instructional technology and programming in the classroom and to items specifically related to the NASA CONNECT™ program series. Findings for the remaining topics are presented in this section. The topic results are reported in terms of mean ratings when the survey items involved a 5-point Likert scale and in percentages when the questions required other responses. Each question was calculated by using the number of respondents that answered that particular question (n) rather than from the total population of respondents (N). Data from the 1998–1999, 1999–2000, 2000–2001, and 2001–2002 program year evaluations can be found in appendix E.

Topic 1: Instructional Technology and Teaching

Respondents were asked to rate seven statements about instructional technology and teaching (table 1). The highest mean rating ($\bar{x} = 4.58$) was given to the statement that *instructional technology enables teachers to teach more effectively*. The next highest mean ratings were given to the statements that *technology enables teachers to be more creative* ($\bar{x} = 4.50$), *increases student motivation and enthusiasm for learning* ($\bar{x} = 4.48$), and *enables teachers to accommodate different learning styles* ($\bar{x} = 4.47$). At slightly lower mean ratings, the respondents reported that *instructional technology increases student learning and comprehension* ($\bar{x} = 4.37$) and *student willingness to discuss content and exchange ideas* ($\bar{x} = 4.19$). The lowest mean rating ($\bar{x} = 3.99$) was given to the statement that *instructional technology is effective with virtually all students*.

Table 1. Instructional Technology and Teaching

Question: Instructional technology...	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
enables teachers to teach more effectively.	4.58	5	0.64	2	5	109
enables teachers to accommodate different learning styles.	4.47	5	0.75	2	5	108
enables teachers to be more creative.	4.50	5	0.81	1	5	111
increases student learning and comprehension.	4.37	5	0.76	2	5	111
increases student willingness to discuss content/exchange ideas.	4.19	4	0.83	2	5	110
increases student motivation and enthusiasm for learning.	4.48	5	0.75	2	5	112
is effective with virtually all types of students.	3.99	4	0.97	1	5	108

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 2: Instructional Programming and Technology in the Classroom

Instructional Programming

Respondents were asked to react to four statements about instructional technology programming intended for use in the classroom (table 2). Higher mean ratings were given to the statements that *schools have increasingly greater access to instructional technology programs* ($\bar{x} = 3.91$) and that *the majority of the programs are of good quality* ($\bar{x} = 3.53$). Lower mean ratings were assigned to the statements that *the majority of the programs are not easily broken into “teachable” units* ($\bar{x} = 2.97$) and that *the majority of the programs are not appropriate (for example, too advanced or too basic) for their students* ($\bar{x} = 2.64$).

Table 2. Instructional Programming

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
Increasingly, schools have greater access to instructional programs.	3.91	4	1.00	1	5	110
The majority of these programs are of good quality.	3.53	4	1.03	1	5	110
The majority of these programs are not appropriate (i.e., too advanced or too basic) for my students.	2.64	3	1.08	1	5	104
The majority of these programs are not easily broken into “teachable” units.	2.97	3	1.28	1	5	99

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Instructional Technology

Respondents completing the survey reacted to three statements concerning the actual use of instructional technology in the classroom (table 3). Respondents gave the highest mean rating ($\bar{x} = 3.82$) to the statement that *administrators support and encourage teachers to use instructional technology in the classroom* and that *classrooms are growing increasingly rich in instructional technology* ($\bar{x} = 3.54$). The lowest rating was given to the statement that *teachers are generally positive about introducing/using instructional technology in the classroom* ($\bar{x} = 3.32$).

Respondents were also given a list of seven factors that could prohibit or limit the integration of technology into their instructional programs. They were asked to indicate which of these factors they considered barriers to integrating technology into their instruction (fig. 1). Respondents were not limited to selecting one factor; they could select all factors that applied. Respondents indicated that *limited access to computers* was the greatest barrier (87 respondents), followed by *lack of time in the school schedule for technology projects* (65 respondents), and *not enough computer software* (62 respondents). *Lack of teacher training* and *lack of technical support* both registered 48 respondents, followed by *lack of knowledge about methods of integrating technology into the curriculum* (43 respondents). *Failure of purchased software to be installed* was reported as the factor least affecting the integration of technology in the classroom (15 respondents).

Table 3. Instructional Technology

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
Administrators support and encourage teachers to use instructional technology in the classroom.	3.82	4	1.14	1	5	102
Classrooms are growing increasingly rich in instructional technology.	3.54	4	1.09	1	5	107
Teachers are generally positive about introducing/using instructional technology in the classroom.	3.32	3	1.00	1	5	108

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

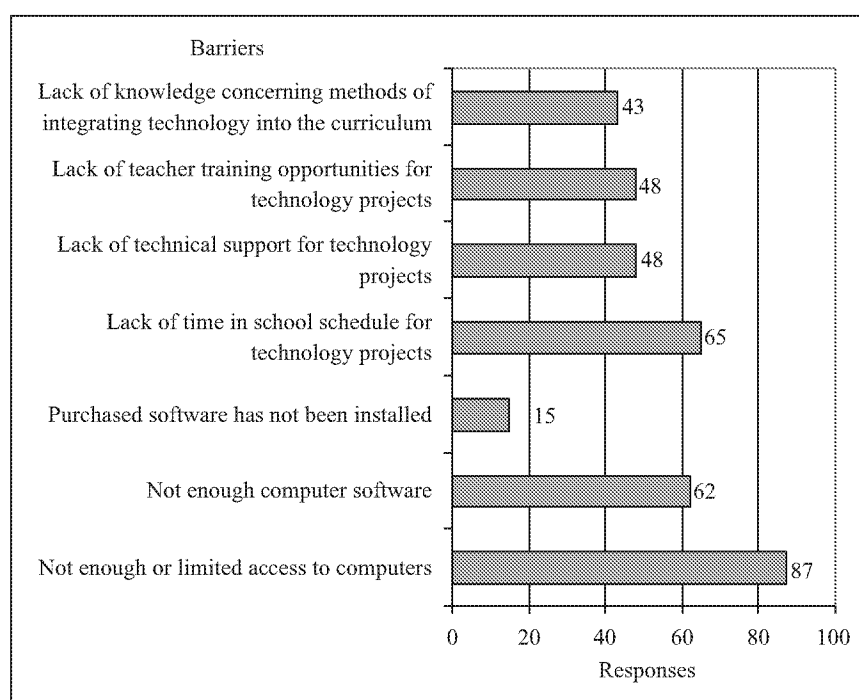


Figure 1. Which of the following factors are barriers to integrating technology into your instructional program?

Topic 3: Overall Assessment of NASA CONNECT™

Respondents were asked to provide an overall assessment of the nine programs in the 2001–2002 NASA CONNECT™ series (table 4). The highest mean ratings were given in response to the statements that *the NASA CONNECT™ series program content was aligned with the national mathematics, science, and technology standards* ($\bar{x} = 4.62$) and *the programs presented women and minorities performing challenging engineering and science tasks* ($\bar{x} = 4.53$). High mean ratings were also given to the statements that *the NASA CONNECT™ programs presented workplace mathematics, science, and technology as a collaborative process* and *the programs presented mathematics, science, and technology as a*

process requiring creativity, critical thinking, and problem-solving skills, both registering means ($\bar{x} = 4.52$), followed closely by the statements that *the programs met their stated objectives and presented the application of mathematics, science, and technology on the job*, both registering means ($\bar{x} = 4.51$). The statement that *the programs raised student awareness about careers that require mathematics, science, and technology* indicated the same response ratio as last year ($\bar{x} = 4.43$). Respondents gave the lowest ratings to the statements that *the program content enhanced the teaching of mathematics, science, and technology* ($\bar{x} = 4.42$), *was developmentally appropriate for the grade level* ($\bar{x} = 4.38$), and that *the program content was easily integrated into the curriculum* ($\bar{x} = 4.26$).

Table 4. Overall Assessment of NASA CONNECT™ Program

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The programs met their stated objectives.	4.51	5	0.65	2	5	74
The program content was developmentally appropriate for the grade level.	4.38	5	0.77	1	5	79
The program content was aligned with the national mathematics, science, and technology standards.	4.62	5	0.59	3	5	77
The program content was easily integrated into the curriculum.	4.26	5	0.94	1	5	77
The program content enhanced the teaching of mathematics, science, and technology.	4.42	5	0.77	2	5	77
The programs raised student awareness about careers that require mathematics, science, and technology.	4.43	5	0.77	2	5	77
The programs presented the application of mathematics, science, and technology on the job.	4.51	5	0.68	2	5	78
The programs presented workplace mathematics, science, and technology as a collaborative process.	4.52	5	0.70	2	5	77
The programs presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills.	4.52	5	0.66	3	5	77
The programs presented women and minorities performing challenging engineering and science tasks.	4.53	5	0.68	3	5	78

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 4: NASA CONNECT™ Television/Video Programs

Respondents were asked if they used the nine programs at the time they were received (fig. 2). The number of “yes” responses varied from 25 respondents (26 percent) for Program 3 to nine respondents (10 percent) for Program 5. The number of “no” responses varied from 19 respondents for Programs 3 and 7, to 27 (28 percent) for Program 1. Overall, the number of respondents indicating that they had not used the programs but “may in the future” ranged from 59 (61 percent) for Program 7 to 50 (51 percent) for Program 1.

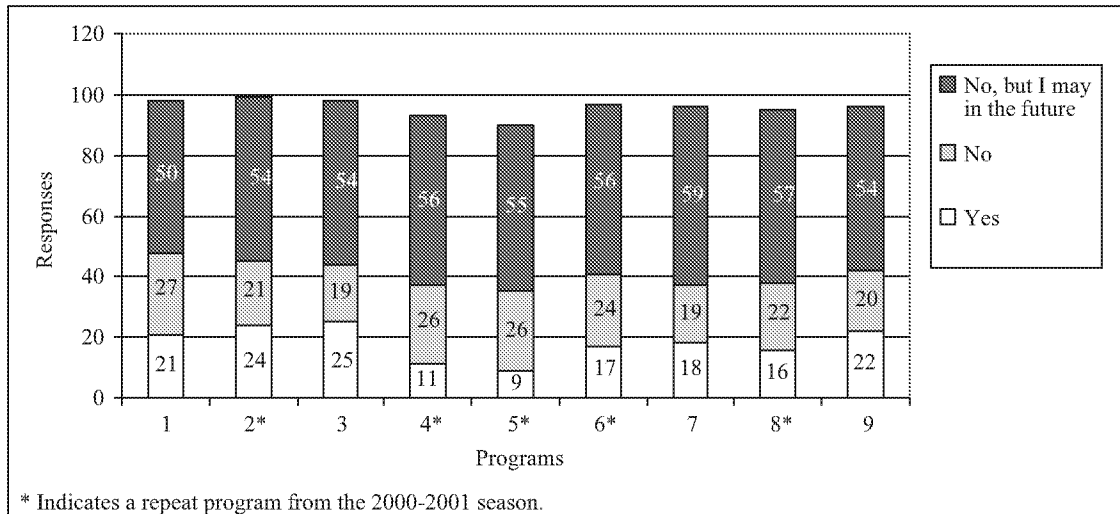


Figure 2. Use of NASA CONNECT™ television/video programs.

Those respondents who used the NASA CONNECT™ programs were asked to identify how they used them in their classes (table 5). Respondents were asked to choose from four possible uses for each of the five identified programs: (1) to introduce a curriculum topic, objective, or skill; (2) to reinforce a curriculum topic, objective, or skill; (3) as a special interest topic; (4) for some other purpose. The highest number of respondents indicated that they used the programs to reinforce a curriculum topic, objective, or skill (ranging from 7 respondents for Program 5 to 16 respondents for Program 1). The least common reported use of NASA CONNECT™ programs was as a break from classroom routine.

Table 5. How NASA CONNECT™ Programs Are Used in the Classroom

Question: NASA CONNECT™ was used . . .	Program				
	1	2	3	4	5
to introduce a curriculum topic, objective, or skill	15	6	9	3	1
to reinforce a curriculum topic, objective, or skill	16	12	13	9	7
as a special interest topic	14	9	11	9	10
as a break from classroom routine	11	4	8	5	6

Program Delivery

Respondents were then asked whether they viewed each of the five indicated programs live, taped, or via both methods (table 6). Most respondents did not view the programs live, rather the programs were taped and viewed at a later time. Only a small percentage of respondents reported that they viewed the program both live and taped. Respondents could also indicate that they did not view the program at all. There was little variance in the number of respondents who had not viewed the programs.

Table 6. How NASA CONNECT™ Programs Were Viewed

Question: How did you view the following programs?	Live	Taped	Both	Not viewed
Program 1	2	27	5	6
Program 2	1	18	2	8
Program 3	1	16	3	6
Program 4	0	12	1	6
Program 5	1	13	1	6

In correlation with the previous section, respondents who used the program were asked to indicate the method by which they received the program (table 7). Five options for program receipt were given: (1) PBS, (2) Downloaded it, (3) Media Specialist taped it, (4) I or someone else taped it, or (5) NASA sent me the tapes. A total of 72 individuals responded to this question, and each respondent was asked to select all the methods of receipt that applied. The most common method of receipt reported was that the evaluator personally taped the programs (23 respondents). Responses for both the media specialist taping the programs and NASA sending the tapes were indicated by 17 respondents. Viewing the programs via PBS registered 15 responses. The least common method of receiving the 2001–2002 NASA CONNECT™ program continued to be downloading the program from the Internet. A follow-up question regarding receipt of the NASA CONNECT™ program inquired whether the respondent experienced any difficulty obtaining any of the programs in the 2001–2002 series. Of the 95 respondents, 51 percent indicated experiencing difficulty obtaining the programs, a 10 percent increase over last year's data.

Table 7. How Programs Were Received

Question: How did you receive the programs?	Number of responses (n)
PBS	15
Downloaded it	8
Media Specialist taped it	17
I or someone else taped it	23
NASA sent me the tapes	17

Grades Viewing the NASA CONNECT™ Programs

Respondents who used the 2001–2002 NASA CONNECT™ series were asked to report which grade levels viewed the programs (fig. 3). Most students viewing the 2001–2002 NASA CONNECT™ series were fifth graders (16 percent) as well as sixth, seventh, and eighth graders, averaging slightly more than 14 percent. The least common grade levels to view the 2001–2002 NASA CONNECT™ programs were grades twelve (5 percent) and three (6 percent). Compared to the results of the 2000–2001 data series, respondents indicated that the grades viewing the programs were more dispersed this year.

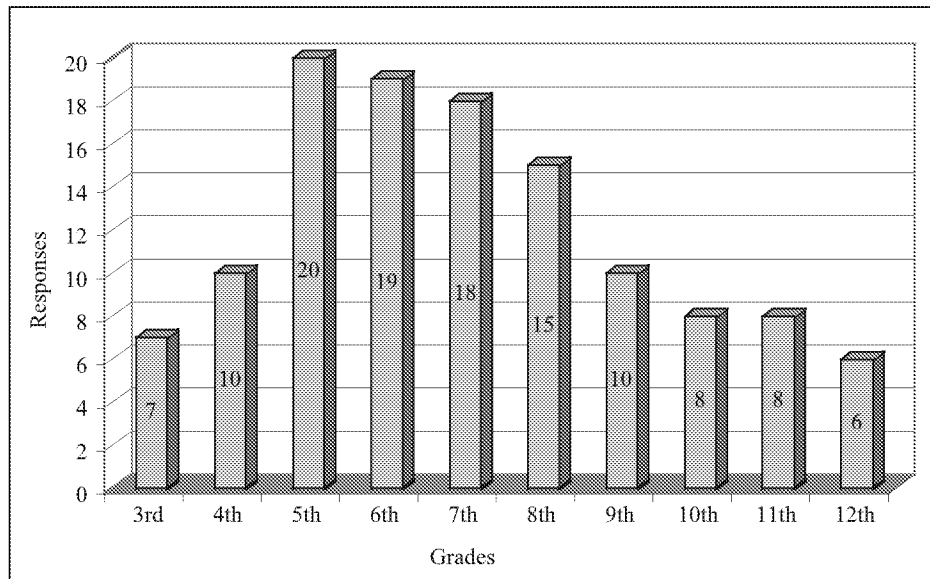


Figure 3. Grades viewing the NASA CONNECT™ programs.

Quality of Television/Video Programs

The last component of the NASA CONNECT™ television/video program evaluation process asked respondents to evaluate program content and quality by indicating their level of agreement with sixteen statements (table 8). The statements receiving the strongest support from the respondents were *the programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills*, and *the programs illustrated the integration of workplace mathematics, science and technology* ($\bar{x} = 4.64$), followed by *the programs demonstrated the application of mathematics, science, and technology on the job* ($\bar{x} = 4.63$). High marks were also given to the statements that *the programs were a valuable instructional aid* ($\bar{x} = 4.58$), and *the programs enhanced the integration of mathematics, science, and technology* ($\bar{x} = 4.56$). The lowest scores were attributed to the statements that *the programs were easily incorporated into the curriculum* ($\bar{x} = 3.99$), *the programs were effective with virtually all types of students* ($\bar{x} = 4.15$), and *the programs increased student willingness to discuss/exchange ideas* ($\bar{x} = 4.24$).

Table 8. Quality of NASA CONNECT™ Television/Video Programs

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The programs were of good artistic quality.	4.45	5	0.68	3	5	69
The programs were of good technical quality.	4.51	5	0.75	2	5	71
The programs enabled me to accommodate different learning styles.	4.31	4	0.72	2	5	67
The programs increased student willingness to discuss/exchange ideas.	4.24	4	0.77	2	5	66
The programs increased student enthusiasm for learning.	4.38	4	0.69	3	5	69
The programs were effective with virtually all types of students.	4.15	4	0.76	2	5	67
The programs were a valuable instructional aid.	4.58	5	0.65	3	5	69
The programs were developmentally appropriate for the grade level.	4.36	5	0.87	1	5	69
The programs were easily incorporated into the curriculum.	3.99	4	1.04	1	5	69
The programs enhanced the integration of mathematics, science, and technology.	4.56	5	0.68	2	5	68
The programs raised student awareness of careers that require mathematics, science, and technology.	4.54	5	0.64	3	5	67
The programs demonstrated the application of mathematics, science, and technology on the job.	4.63	5	0.62	2	5	67
The programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills.	4.64	5	0.57	3	5	67
The programs illustrated the integration of workplace mathematics, science, and technology.	4.64	5	0.65	2	5	66
The programs presented women and minorities performing challenging engineering and scientific tasks.	4.55	5	0.58	3	5	67
The programs were a positive link between the classroom activity and the web-based activity.	4.46	5	0.67	2	5	61

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 5: NASA CONNECT™ Lesson Guides

Use of Lesson Guides

Respondents were asked if they used the lesson guides they received as part of their registration with the NASA CONNECT™ series (fig. 4). The percentage of “yes” responses varied from 25 percent for Program 3 to 11 percent for Program 5. The percentage of “no” responses varied from a high of 29 percent for Program 5 to a low of 19 percent for Program 3. Overall, the percentage of respondents indicating that they *may use the program in the future* ranged from 63 percent for Program 7 to 54 percent for Programs 2 and 3. As with the responses concerning the usage of the Television/Video programs, a dramatic shift indicating less use of the lesson guides is apparent and may largely be due to the inability of educators to download lesson guides for several weeks after September 11th when all of NASA’s Center for Distance Learning’s web sites were taken offline. New security measures were implemented, and these sites are again available online.

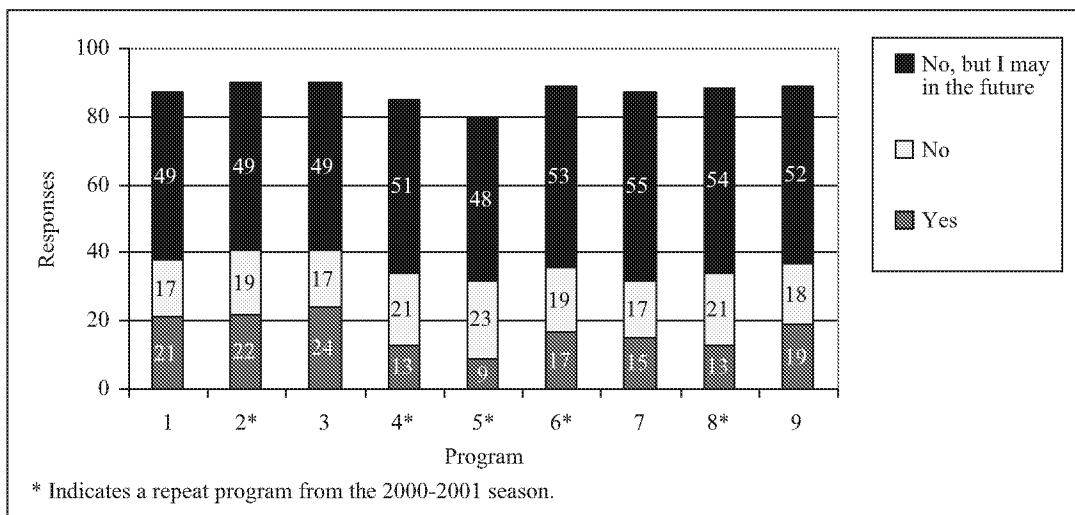


Figure 4. Use of lesson guides.

Quality of Lesson Guides

The respondents were asked to react to seven statements about the quality of the NASA CONNECT™ lesson guides (table 9). They gave the statement about the teacher *background portion being a valuable instructional aid* the highest mean rating ($\bar{x} = 4.48$), the same as last year. The statement receiving the next highest agreement was that *the lesson guides were a valuable instructional aid* ($\bar{x} = 4.44$). The next highest scores were given to the statement that *the layout of the lesson guides presented the information clearly* ($\bar{x} = 4.43$) and *the print and electronic resources were a valuable instructional aid* ($\bar{x} = 4.40$). Both of these statements, *the directions/instructions in the lesson guides presented the information clearly* and *the cue cards provided a positive link between the video and lesson guide*, registered means of 4.23. The statement that *the lesson guide was easily downloaded from the Internet* received the lowest mean rating ($\bar{x} = 4.08$.)

Table 9. Quality of NASA CONNECT™ Lesson Guides

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The directions/instructions in the lesson guides presented the information clearly.	4.23	4	0.81	3	5	48
The layout of the lesson guides presented the information clearly.	4.43	5	0.74	2	5	56
The lesson guides were a valuable instructional aid.	4.44	5	0.71	2	5	55
The print and electronic resources in the lesson guide were a valuable instructional aid.	4.40	5	0.95	1	5	50
The cue cards provided a positive link between the video and the lesson guide.	4.23	4	0.81	3	5	48
The teacher “background” portion of the lesson guide was a valuable instructional aid.	4.48	5	0.72	2	5	54
The lesson guide was easy to download from the Internet.	4.08	5	1.23	1	5	40

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 6: NASA CONNECT™ Classroom Activities/Experiments

Use of Classroom Activities/Experiments

Respondents were asked whether they used the classroom activities/experiments included with the NASA CONNECT™ series (fig. 5). The percentage of “yes” responses varied from 25 percent for Program 3 to 7 percent for Program 5. The percentage of “no” responses varied from a high of 23 percent for Program 5 to a low of 14 percent for Program 3. Overall, the percentage of respondents indicating that they *may use the program in the future* ranged from 69 percent for Programs 4 and 5, to 60 percent for Program 3. These results reflect a lower percentage of individuals who indicated using the classroom activities, but this response may also be due to the unavailability of NASA CONNECT™ web sites for a period following September 11th.

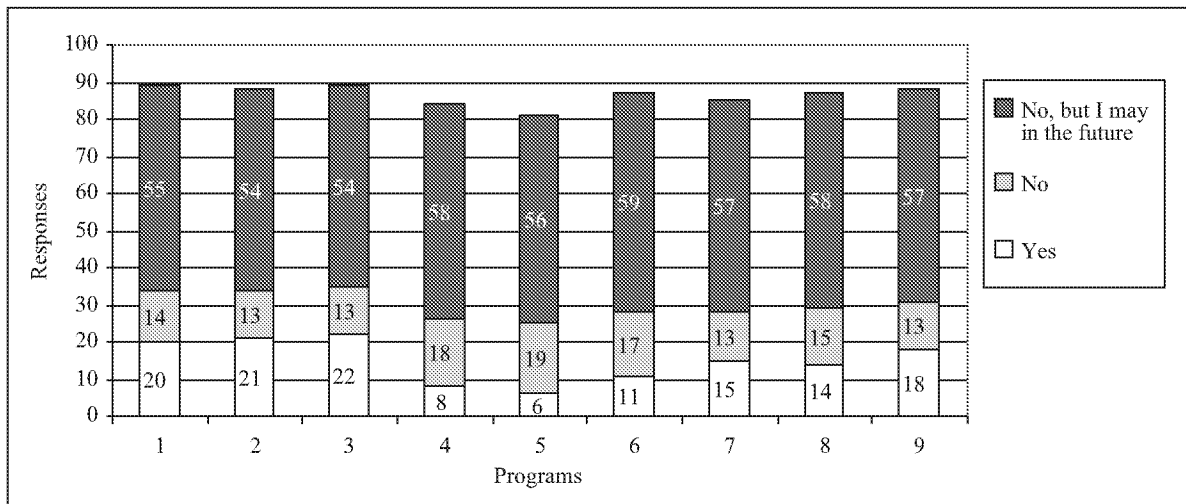


Figure 5. Use of classroom activities.

Quality of Classroom Activities/Experiments

Respondents were asked to respond to four statements about the program-related classroom activities/experiments (table 10). The quality of the classroom activities/experiments was rated highest for *complementing the lesson for each show* ($\bar{x} = 4.39$). The classroom activities/experiments also were rated high for *ease of use* ($\bar{x} = 4.34$) and for *being developmentally appropriate for the grade level* ($\bar{x} = 4.29$). The lowest mean rating was given to the statement concerning *the ease of incorporating them into the lesson plans* ($\bar{x} = 4.18$). Compared to the responses concerning the quality of the Classroom Activities/Experiments for the 2000–2001 series, the responses for this year indicate that quality of the activities/experiments has improved considerably.

Table 10. Quality of NASA CONNECT™ Classroom Activities

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The classroom activity (experiment) was easily incorporated into my lesson plan.	4.18	4	0.83	1	5	49
The classroom activity (experiment) complemented the lesson for each show.	4.39	5	0.74	3	5	46
The classroom activity was developmentally appropriate for the grade level.	4.29	4	0.74	3	5	49
The classroom activities (experiments) were easy for me to use.	4.34	4	0.64	3	5	47

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 7: NASA CONNECT™ Web-Based Activity

Use of Web-Based Activities

Respondents were asked if they used the web-based activity included with the NASA CONNECT™ series (fig. 6). The percentage of “yes” responses varied from 15 percent for the activity associated with Program 8, to 1 percent for Program 7. The percentage of “no” responses varied from a high of 39 percent for Programs 4 and 7 to a low of 33 percent for Program 8. Overall, the percentage of respondents indicating that they *may use the program in the future* ranged from 59 percent for Programs 6 and 7, to 52 percent for Program 8.

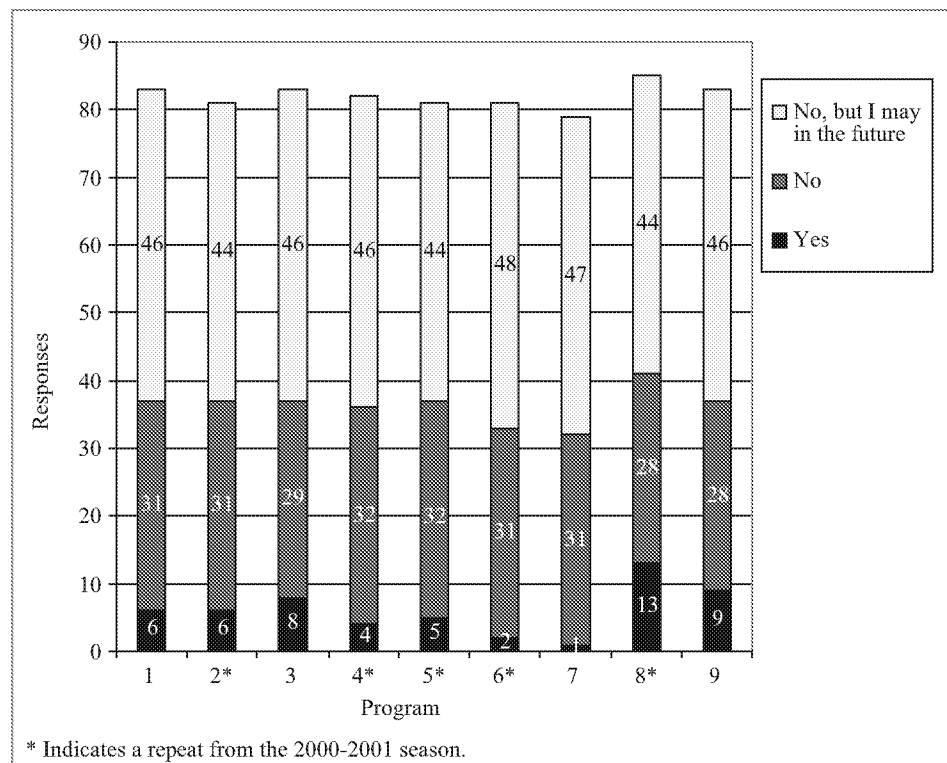


Figure 6. Use of web-based activities.

Grades Using NASA CONNECT™ Web-Based Activities

Respondents who used the 2001–2002 NASA CONNECT™ program were asked to report which grade levels used the web-based activities (fig. 7). Most students viewing the 2001–2002 NASA CONNECT™ series were fifth graders (25 percent), followed by eighth graders (20 percent), and sixth and seventh graders (12.5 percent). All other grade levels who viewed the 2001–2002 NASA CONNECT™ programs registered 5 percent each, of the overall usage. However, few people responded to this question; therefore, no significant conclusions should be drawn from these data.

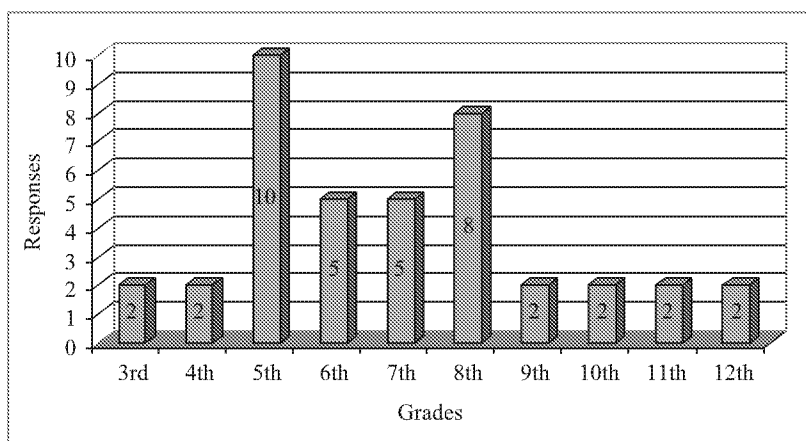


Figure 7. Grades using NASA CONNECT™ web-based activities.

Quality of Web-Based Activities

The respondents were asked to react to ten statements concerning the quality of the NASA CONNECT™ programs' web-based activities (table 11). The statements that *more online activities should be available on the NASA CONNECT™ web site* ($\bar{x} = 4.56$), *the web-based activities enhanced the integration of mathematics, science, and technology* ($\bar{x} = 4.54$), and *had a good balance of text and graphics* ($\bar{x} = 4.48$) received the highest mean ratings from the respondents. Slightly lower ratings were given to the statements that *the web-based activities raised student awareness of careers that require mathematical, scientific, and technological knowledge* ($\bar{x} = 4.40$) and *the content of the web-based activities was appropriate for students* ($\bar{x} = 4.36$). These statements, *the content of the web-based activities was easily integrated into the curriculum*, and *accommodated various learning styles*, registered the lowest mean ratings in this section.

Table 11. Quality of the NASA CONNECT™ Web-Based Activities

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The content of the web-based activities was easily integrated into the curriculum.	4.30	5	1.03	1	5	27
The content of the web-based activities enhanced the integration of mathematics, science, and technology.	4.44	5	0.82	2	5	25
The web-based activities raised student awareness of careers that require mathematical, scientific, and technological knowledge.	4.40	5	0.96	2	5	25
Students were able to complete the web-based activities in a reasonable amount of time.	4.30	5	0.82	3	5	27
The web-based activities accommodated various learning styles.	4.30	4	0.78	3	5	27
The content for the web-based activities was appropriate for my students.	4.36	5	0.87	2	5	28
The graphics for the web-based activities was appropriate for my students.	4.32	5	0.86	3	5	28
The web-based activities enhanced the integration of mathematics, science, and technology.	4.54	5	0.64	3	5	28
The web-based activities had a good balance of text and graphics.	4.48	5	0.78	3	5	29
The web-based activities allowed my students to work at their own pace.	4.33	5	0.78	3	5	27
The web-based activities will likely be revisited/reused.	4.50	5	0.69	3	5	28
More online activities should be available on the NASA CONNECT™ web site.	4.56	5	0.67	3	5	32

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Respondents were also asked whether their students used Norbert’s Lab. Of those responding (n = 41), 76 percent indicated that they did not use Norbert’s Lab, while 24 percent reported using this aspect of the web-based activity.

Topic 8: NASA CONNECT™ Web Site

Quality of NASA CONNECT™ Web Site

Those surveyed were asked to respond to eight statements about the NASA CONNECT™ web site (table 12). They gave the highest mean ratings to the statements that *the NASA CONNECT™ web site is visually appealing* ($\bar{x} = 4.56$) and that *the web site can be viewed clearly on the monitor* ($\bar{x} = 4.49$). They also gave high ratings to *the design of the web site, which made the printouts of individual pages legible* ($\bar{x} = 4.38$), *the balance between text and graphics on the web site* ($\bar{x} = 4.37$), and *the ease of navigation* ($\bar{x} = 4.32$). Respondents gave the lowest rating to *the speed of downloading the web site* ($\bar{x} = 3.99$).

Table 12. Quality of NASA CONNECT™ Web Site

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The NASA CONNECT™ web site is visually appealing.	4.56	5	0.67	2	5	81
There is a good balance between text and graphics on the web site.	4.37	5	0.78	1	5	81
The web site is easily navigated.	4.32	5	0.83	1	5	81
When viewed on my monitor, the web site is clearly legible.	4.49	5	0.74	2	5	84
The web site is designed so that printouts of individual pages are legible.	4.38	4	0.74	1	5	71
Pages within the web site download quickly.	3.99	4	1.10	1	5	75
The page lengths are appropriate.	4.38	5	0.77	2	5	74
The links to other sites/pages are current.	4.38	5	0.78	1	5	73

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

Topic 9: Classroom Environment

Instructional Technology Equipment

Respondents were asked about the availability/location of specific kinds of technology in their classrooms, schools, and homes (fig. 8). A television, a VCR, a video camera, a laser disc player, video editing equipment, a computer, and a DVD were the items specified. The respondents were asked to mark all that applied.

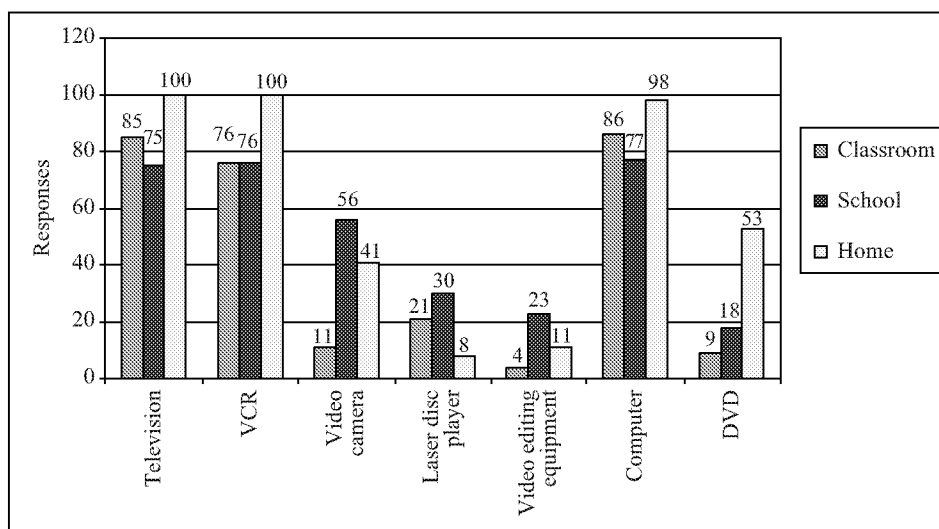


Figure 8. Availability of specific instructional technology.

Television – Eighty-five (85) respondents reported that they had televisions in their classrooms, seventy-five (75) reported televisions in their schools, and one hundred (100) reported televisions in their homes.

VCR – Seventy-six (76) respondents reported VCRs in their classrooms, seventy-six (76) reported VCRs in their schools, and one hundred (100) reported VCRs in their homes.

Video Camera – Eleven (11) respondents indicated having video cameras in their classrooms, while fifty-six (56) had video cameras in their schools, and forty-one (41) had video cameras in their homes.

Laser Disc Player – Twenty-one (21) respondents reported having laser disc players in their classrooms, thirty (30) had laser disc players in their schools, and eight (8) had laser disc players in their homes.

Video Editing Equipment – Only four (4) respondents answered that they had video editing equipment in their classrooms, twenty-three (23) had video editing equipment in their schools, and eleven (11) had the equipment in their homes.

Computer – Eighty-six (86) respondents reported having computers in their classrooms, seventy-seven (77) reported having computers in their schools, and ninety-eight (98) reported having computers in their homes.

DVD Player – Nine (9) respondents reported having DVD players in their classrooms, eighteen (18) reported having a DVD player in their school, and fifty-three (53) reported having one in their home.

Computer Accessories

Respondents were asked about the availability/location of specific computer accessories in their homes and schools (fig. 9). The accessories were a CD-ROM, a DVD, and an internet connection. The respondents were asked to mark all choices that applied.

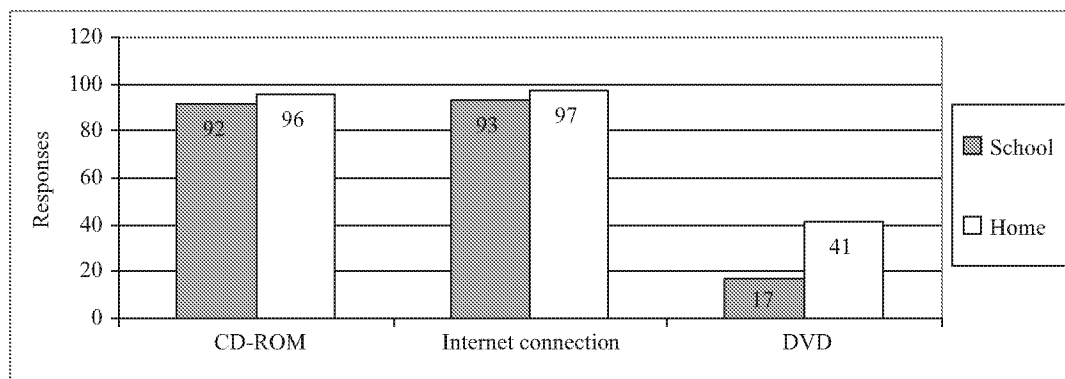


Figure 9. Availability of specific computer accessories.

CD-ROM – Ninety-two (92) respondents had CD-ROMs in their schools and ninety-six (96) had them in their homes.

Internet Connection – Ninety-three (93) had internet connections in their schools and ninety-seven (97) reported having internet connections in their homes.

DVD – Seventeen (17) respondents had DVDs in their schools and forty-one (41) had them in their homes.

School Computer Operating System

Survey respondents were asked how many computers were in their classrooms. The mean number of computers in each classroom was $\bar{x} = 3.81$. Survey respondents were then asked to identify the type of computer operating system used in their schools (fig. 10). Twenty-two respondents reported that their schools used a Macintosh system, while sixty-six respondents reported that their schools used a Windows system. Eleven respondents reported that both Macintosh and Windows operating systems are used in their classrooms.

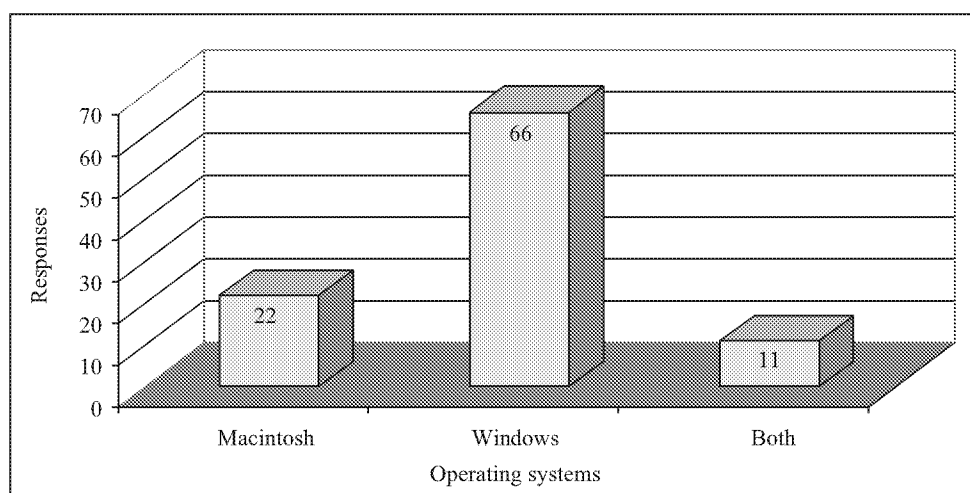


Figure 10. Computer operating systems used in schools.

Student Use of School Computers

Respondents were asked how often a typical student in their schools used a computer during a given month (fig. 11). Forty percent reported that a student used a computer one to five (1–5) times in a given month, twenty-eight percent reported that a student used a computer from six to ten (6–10) times, and sixteen percent reported that a student used a computer from eleven to twenty (11–20) times within a given month. Nine percent of those surveyed said that a typical student used a computer in their schools twenty-one to forty (21–40) times in a given month, while six percent reported a use of forty-one (41) or more times within a month. This year, the percentage of respondents indicating that typical students used computers 6–10 times a month was much higher than last year. Excluding this change, this year's results were fairly consistent with last year's findings.

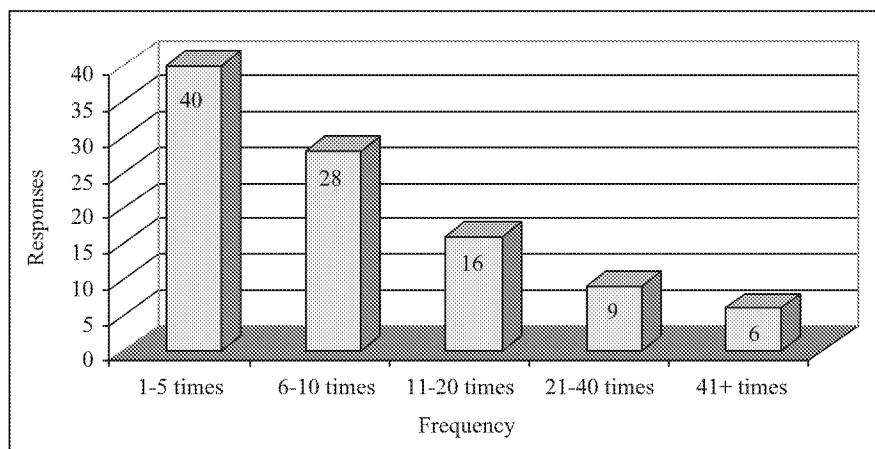


Figure 11. Student use of school computers.

Student-to-Computer Ratio

Survey respondents were asked how students operated the computers in their classroom (fig. 12). Forty-nine percent responded that students operated computers on a ratio of one student per computer. Twenty-five percent reported that the students worked with computers in pairs (i.e., two students per computer). Twelve percent indicated that the students operated the computers in groups (i.e., three or more students per computer). Thirteen percent reported that the students worked on the computers as a class. Respondents could mark all boxes that applied.

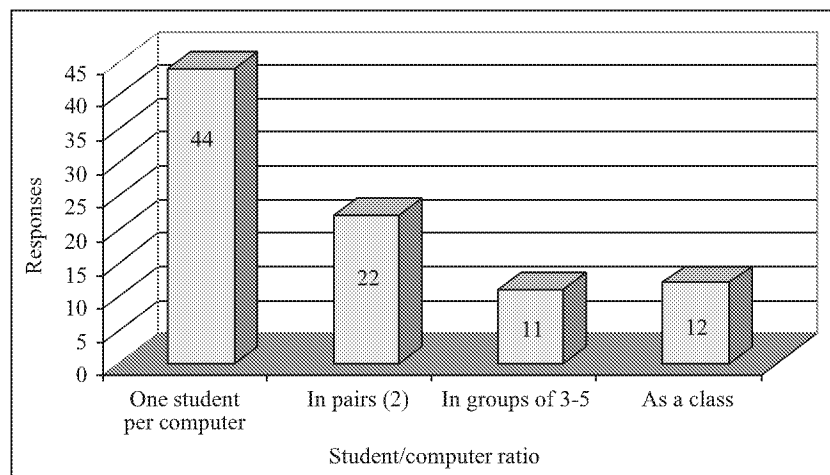


Figure 12. Student-to-computer ratio.

Classroom Connection to Internet

We asked respondents to indicate how the computers in their classrooms are connected to the Internet (fig. 13). Ten percent reported that a 28.8 modem is used. Seven percent indicated that a 56-K modem is used, and fifteen percent reported the use of a cable modem. Twenty-three percent said that a T-1 line is used. Ten percent said that their classrooms do not have a connection, and thirty-two percent said that they did not know about their classroom connections.

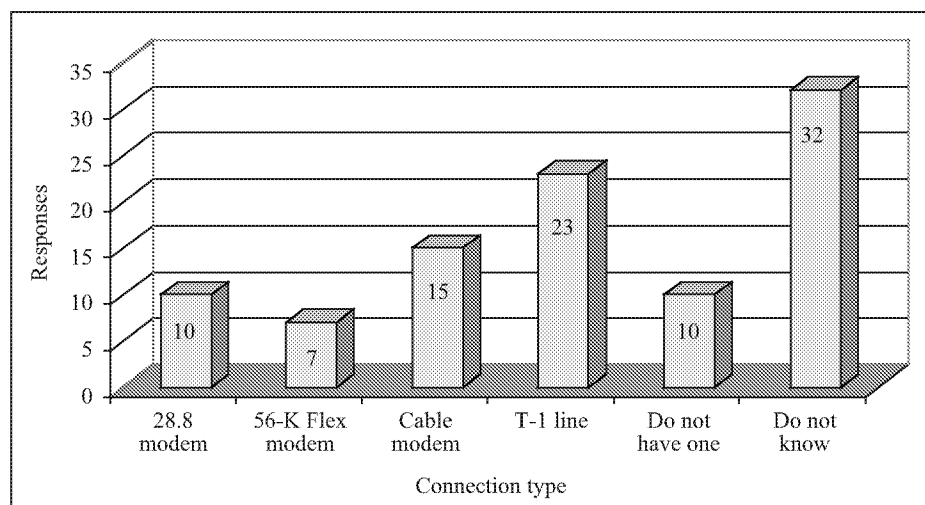


Figure 13. Type of classroom internet connection.

Purposes of Student Computer Use

Survey respondents were given eleven purposes for student computer use and were asked to mark all that applied (fig. 14). Ninety-one (91) selected *finding out about ideas and information*. Seventy-two (72) selected *higher order thinking skills*, and seventy-two (72) selected *improving computer skills*. Sixty-eight (68) selected *learning to work independently*. Fifty-seven (57) selected *analyzing*

information. Sixty-three (63) checked *learning to work collaboratively*. Fifty-three (53) checked *remediation of skills not learned well*. Sixty-six (66) respondents selected the objectives of *expressing ideas in writing* and fifty-one (51) selected *mastering skills just taught*. Fifty-four (54) selected *presenting information to an audience*, forty-one (41) marked *communicating electronically with others*, and six (6) selected *other objective*. As with data from 1999–2000 and 2000–2001, *higher order thinking skills* and *finding out about ideas and information* continued to be the most frequently stated objectives for student computer use. *Improving computer skills* was also among the most frequently reported uses of computers by students this year.

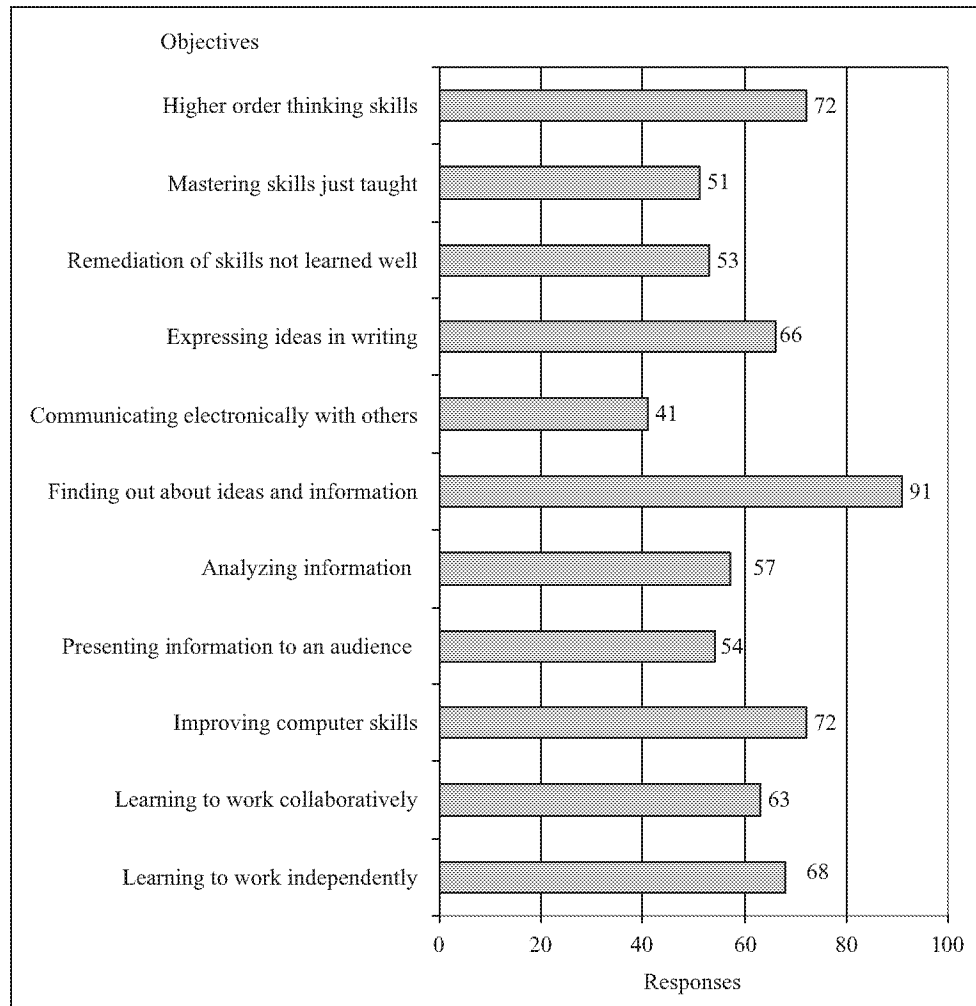


Figure 14. Objectives for student computer use.

Educators' Professional Use of Computers

Educators were asked whether the school-based technology training that had been provided by their school had improved their computer technology skills (table 13). The mean response on the five-point Likert scale was $\bar{x} = 3.21$. The respondents were also asked to identify the ways in which they used computers for lesson preparation or other professional activities and to indicate the frequency of each use. They were to mark all uses that applied.

Table 13. School-Based Training

Question	Mean	Median	Standard deviation	Min.	Max.	Number of responses (n)
The school-based technology training provided by my school division improved my computer technology skills.	3.21	3	1.44	1	5	78

“Min.” denotes the minimum rating reported.

“Max.” denotes the maximum rating reported.

To Record or Calculate Student Grades

Twenty-eight of the 108 respondents indicated that they did not use the computer for recording or calculating student grades; 12 respondents used the computer for recording or calculating student grades occasionally; 20 respondents used the computer for this purpose weekly, and 47 respondents used the computer for recording/calculating grades more often than weekly.

To Make Handouts for Students

Four of the 108 respondents reported that they did not use the computer to produce handouts for students, while 26 respondents did so occasionally; 24 respondents used the computer weekly, and 49 respondents used the computer more often than that to make handouts for students.

To Correspond With Parents

Of the 108 respondents surveyed, 32 respondents did not use the computer to correspond with parents, while 48 respondents used the computer for this purpose occasionally; 13 respondents reported that they used the computer for corresponding with parents weekly, and 14 respondents reported that they used the computer for this purpose more often than weekly.

To Write Lesson Plans or Related Notes

Fourteen of the 108 respondents indicated that they did not use the computer to write lesson plans or related notes, while 30 respondents did so occasionally; 31 respondents used the computer for writing lesson plans and related notes weekly, and 33 respondents used the computer for this purpose more often than on a weekly basis.

To Get Information or Pictures From the Internet for Lesson Use

Two of the respondents reported that they did not use the computer to get information or pictures from the Internet for use in lessons; 48 reported occasional use of the computer to get information and pictures from the Internet for lessons, while 21 respondents used the computer for this purpose on a weekly basis, and 37 more frequently than that.

To Use Camcorders, Digital Cameras, or Scanners for Class Preparation

Fifty-one respondents reported that they did not use camcorders, digital cameras, or scanners in preparing for their classes; 46 used camcorders, digital cameras, or scanners for class preparation occasionally; 4 used them weekly; and 7 used the items more frequently than weekly.

To Exchange Computer Files With Other Teachers

Fifty-five respondents reported no use of computers for exchanging computer files with other teachers, and 39 did so occasionally. Eight used computers to exchange files with other teachers weekly, and 6 used computers for this purpose more frequently than weekly.

To Post Information on World Wide Web

Seventy-eight respondents indicated that they did not use the computer to post student work, suggestions for resources, or ideas and opinions on the World Wide Web. Twenty used the computer for posting this kind of information occasionally; 7 reported weekly use for this purpose, and 3 reported use more than weekly.

Interpreting the Findings

Having presented the survey data in the previous section, the next step involves interpreting the data in terms of assessing the quality of NASA CONNECT™. Excluding the survey demographics, interpretations of the finds are presented by topic.

Topic 1: Instructional Technology and Teaching

Considering the data from this year and last year, survey respondents continue to take the position that instructional technology enables teachers to be more creative, to teach more effectively, and to effectively accommodate different learning styles. Furthermore, respondents continue to believe in the power of instructional technology to motivate students to learn and to increase learning and comprehension. Overall, we interpret these findings to mean that survey respondents believe in the power of instructional technology to enhance and enrich the learning process and experience. That belief coincides with the relevant literature and research and would seem to support the large-scale effort on the part of educators to improve school access to educational technology.

Topic 2: Instructional Programming and Technology in Classroom

Instructional Programming

Respondents appear to agree with the statements that schools have greater access to instructional technology programs and that the majority of these programs are of good quality. Furthermore, respondents still indicated that these programs are not easily broken into “teachable” units and that the majority of these programs are not appropriate for their students (i.e., too advanced or too basic). Overall, we interpret these findings to mean that survey respondents are satisfied with the quality of the programs but are still concerned with the suitability of instructional programming to meet the instructional needs of their students.

Instructional Technology

Survey respondents reported that administrators generally support and encourage the use of instructional technology in the classroom to a slightly lower degree than last year. Compared to 2000–2001 data, respondents were less optimistic about classrooms *growing increasingly rich in instructional technology*. Down from previous years, were respondents’ beliefs regarding that *administrators support and encourage teachers to use technology* and that *teachers are positive about using such technology in the*

classroom. However, this year's respondent pool gave a lower mean to that technology's availability in the classroom, thus showing a disparity between the existence of technology and the demand for such technology in the classroom. This disparity is confirmed by additional findings of this survey and also from national trends. First, in complete symmetry with the last two years' results, respondents once again rated *no or limited access to computers* and *lack of time in the school schedule for technology projects* as the two greatest barriers to integrating instructional technology in the classroom. Research suggests that an increasing amount of pressure is being placed on administrators, teachers, and students to pass "competency" tests. Conventional wisdom indicates that administrators and educators alike are reluctant to allow or to introduce any instructional resource into the classroom that doesn't clearly support the state standards. Both of these factors may help explain the differences between a teacher's desire to use technology in the classroom and the availability/usability of such technology within the curriculum.

Topic 3: Overall NASA CONNECT™ Program Assessment

The overall assessment of NASA CONNECT™ is based on the extent to which survey respondents reported that the 10 objectives established for the series were met. Considering the data from this and previous program years, the stated objectives for the NASA CONNECT™ series are being met. However there are two areas that appear to be problematic. These areas, grade level appropriateness and ease of integration into a curriculum, are singled out for attention. These two areas have consistently received lower means for every year of the NASA CONNECT™ formal evaluation process. The established grade levels for NASA CONNECT™ are grades 6–8. Given the low score (i.e., rating) received for this objective and that this year's score is lower than that of the previous year, it might be wise to investigate the "grade level distribution and use" of the NASA CONNECT™ series. It is important to note that because of previous evaluation data, the grade levels established for NASA CONNECT™ changed from 5–8 to 6–8 in 1999–2000. Likewise, given that ease of integration received the lowest score for four program years, it might also be wise for program officials to devote both time and resources to further investigate this finding.

Topic 4: NASA CONNECT™ Instructional Broadcast

Respondents are about evenly divided in terms of "how they use" the broadcasts in the NASA CONNECT™ series. More than 50 percent of the respondents use the broadcasts in the series either to (1) *introduce* or (2) *reinforce* a topic, objective, or skill. Similarly, the percentage of respondents who indicated that they taped the broadcasts for later use, as opposed to using the broadcasts when they aired, ranged from 61 percent to 68 percent. Furthermore, although the broadcasts in the 2001–2002 NASA CONNECT™ series were used in grades 4–12, they were used almost twice as often in grades 5–8. Lastly, when considering a list of 15 "quality" indicators, survey respondents once again gave the instructional broadcasts high marks for artistic, technical, and instructional quality. Overall, we interpret these findings to mean that the broadcasts in the NASA CONNECT™ series are (1) being used by educators; (2) being used by educators as an instructional resource; (3) being used predominantly in the intended grades; and (4) are of high artistic, technical, and instructional quality.

Topic 5: NASA CONNECT™ Lesson Guides

The lesson guides for the NASA CONNECT™ series contain the applicable standards, objectives, resources, and lesson extensions. Considering the lesson guides in the 2001–2002 NASA CONNECT™ series, the usage rate by survey respondents ranged from 25 percent for Program 3 to 7 percent for Program 5. The percentage of "no" responses varied from a high of 23 percent for Program 5 to a low of

14 percent for Program 3. Overall, the percentage of respondents indicating that they “may use the program in the future” ranged from 69 percent for Programs 4 and 5, to 60 percent for Program 3. This result indicates a dramatic shift away from the use of Classroom Activities/Experiments, and is aligned with the results for use of the Lesson Guides and the Television/Video programs.

Using a 5-point scale (with 5.0 being the highest), respondents were asked to “rate” the quality of the lesson guides on each of seven (7) “quality” criteria. The “overall” mean quality rating for the guide was 4.32, up slightly from last year’s 4.27. The quality factors receiving the highest values were *the background portion of the guide* (4.48) and *the guides are a valuable instructional aid* (4.44). The quality factor, *easy to download from the Internet*, received the lowest rating (4.08). We interpret these findings to indicate that in addition to the guides being used, the overall quality of the guides is high. Finally, given that the guides are available from the NASA CONNECT™ web site as PDF files, any difficulties encountered downloading the guides from the Internet are best associated with equipment and network considerations or user error and have less to do with the overall quality of the guides.

Topic 6: NASA CONNECT™ Classroom Activities/Experiments

Each NASA CONNECT™ program includes a hands-on activity or experiment that is designed to reinforce the mathematics, science, and technology concepts included in the instructional program and in the classroom. Considering the hands-on activities in the 2001–2002 NASA CONNECT™ series, the use rate by survey respondents ranged from 7 percent to 25 percent, significantly lower than last year’s results. Of those respondents who indicated that they had not used the classroom activities, the responses to the statement, *may use them in the future*, ranged from a low of 60 percent to a high of 69 percent.

Using a 5-point scale (with 5.0 being the highest), respondents were asked to “rate” the quality of the classroom activities on each of four “quality” criteria. The “overall” mean quality rating for the classroom activities was 4.30, up slightly from last year’s 3.94. The quality factors receiving the highest values were *the activity complemented the lesson* (4.39) and *the classroom activities (experiments) were easy for me to use* (4.34). The quality factor, *the classroom activities (experiments) were easily incorporated into my lesson plan* (4.18), received the lowest rating. These findings indicate that the overall quality of the activities is high; however, we need to identify and rectify problems concerning the ease of incorporating the activities into the classroom curriculum. The factors which we identified last year as possible reasons for the difficulty in incorporating the Classroom Activities into the curriculum were (1) the time it takes to conduct the classroom (i.e., hands-on) activity exceeds available “classroom time,” (2) teachers being uncomfortable using hands-on activities, and (3) emphasis being placed on using classroom time to cover only those mathematics, science, and technology concepts included in the various state proficiency tests. In coming years, we should continue to try to reduce the effect of these barriers by improving the quality, usability, and value of the classroom activities.

Topic 7: NASA CONNECT™ Web-Based Activities

Each NASA CONNECT™ program includes a web-based activity that is designed to reinforce the mathematics, science, and technology concepts included in the instructional program and provide teachers an opportunity to introduce technology into the classroom. The usage rate for the 2001–2002 NASA CONNECT™ Web-Based Activities ranged from a low of 1 percent to a high of 15 percent. Of those respondents who indicated that they had not used the web-based activities, the responses to the statement, *may use them in the future*, ranged from a low of 52 percent to a high of 59 percent. These figures are consistent with the usage rate of the web-based activities from the 2000–2001 program series.

Respondents were also asked to report the grade levels of the students using the web-based activities. Fifth graders comprised the largest percentage of students using the web-based activities, followed by eighth graders, seventh graders, and sixth graders.

Concerning the quality of the web-based activities, respondents were asked to reply to twelve “quality” criteria. The quality factors receiving the highest values were that *the web-based activities enhanced the integration of mathematics, science, and technology* (4.54) and that *the activities will likely be revisited/reused* (4.50). The quality factor, *the web-based activities accommodated various learning styles*, received the lowest rating (4.30). We interpret these findings to indicate that even though the web-based activities are not being used as much as intended, the overall quality of the web-based activities is high and that more online activities should be added to the NASA CONNECT™ web site.

Topic 8: NASA CONNECT™ Web Site

Using a 5-point scale (with 5.0 being the highest), respondents were asked to “rate” the quality of the NASA CONNECT™ web site on each of eight (8) “quality” criteria. The “overall” mean quality rating for the NASA CONNECT™ web site was 4.36. These ratings for the 2001–2002 NASA CONNECT™ program year are consistent with the 2000–2001 findings.

Topic 9: Classroom Environment

Instructional Technology Equipment

We asked respondents several questions regarding the availability of specific instructional technology equipment (e.g., VCR, DVD player) in their classrooms, schools, and homes to determine the technological landscape of educators. This information may help explain the “use/non-use” of existing technology-based products and should be considered when developing the curriculum format for the NASA CONNECT™ series. Most respondents indicated the presence of a TV, VCR, and a computer in their classrooms, schools, and homes. The more expensive equipment (e.g., video editing system and digital camera) was found mostly in the schools, with the newer technology (e.g., DVD player) found in homes and, to a lesser degree, in schools and classrooms. What these results don’t tell us is how much, if any, training educators have had using this equipment and the amount of time they have to use a computer or any other technology equipment.

Computer Accessories

Respondents were also asked about the availability of specific computer equipment/accessories in their classrooms, schools, and homes. Again, the answers to these questions depict the existing technology landscape, to help explain the “use/non-use” of existing technology-based products, and to help plan the introduction of additional technology-based products as part of the NASA CONNECT™ series.

Student Use of Computers

We attempted to determine the number of computers in the schools and the type of operating systems used by these computers. The average number of computers per classroom was 3.81. This number shows a significant increase from last year’s mean of only 2.99. Most respondents (67 percent) reported that their systems were PC-based, while 22 percent reported their computers were Mac-based. A “mixture of the two” was a distant third with 11 percent. We also wanted to know how often a typical student used a classroom computer in a month. About 40 percent indicated that such a student used a computer one to

five times a month, 28 percent (up from 11 percent last year) reported a use rate of six to ten times a month, and 16 percent reported a use rate of eleven to twenty times a month.

Educator Computer Use

The training received by teachers and educators is essential to the success of technology use in the classroom (Thomas, 2000). “Today’s teachers are asked to integrate technology and incorporate media into their classes to enhance teaching, while improving student learning. Money is poured into schools to supply labs with state-of-the-art equipment and software. However, all the best intentions in the world are impossible to carry out if teachers are not trained sufficiently, are not comfortable enough with the software and equipment, and do not really believe in the benefits of current technology” (Ariza, Knee, and Ridge, 2000). Acknowledging this reality, we asked respondents several questions about training and computer use. We asked them to rate the helpfulness of the school-based technology training provided by their school or school system. Most reported that the training was moderately helpful. Respondents reported that they most often used a computer for such administrative duties as recording/calculating grades and for such educational purposes as searching the Internet for lesson use, preparing lesson plans, and making handouts for students. Respondents reported that they least often used computers to operate technology-based equipment, to exchange files with other educators, and to post student work assignments on the World Wide Web. These findings are virtually the same as those reported for the 1998–1999, 1999–2000, and the 2000–2001 NASA CONNECT™ program years.

Concluding Remarks

A self-reported survey was mailed to individuals randomly selected from the database of NASA CONNECT™ registrants. Based on the responses, the following facts have been established for the 2001–2002 NASA CONNECT™ program year. NASA CONNECT™ is an instructional resource that is designed to integrate mathematics, science, and technology in grades 6–8. According to survey respondents, educators view NASA CONNECT™ as a beneficial instructional resource. Respondents report that (1) the instructional broadcast is most often taped for use at a later date rather than being used “live”; (2) some parts of a NASA CONNECT™ program are used more frequently than other parts; and (3) NASA CONNECT™ is used most often to reinforce topics, objectives, or skills. Furthermore, it appears that the changes/improvements that were implemented as a result of the 1998–1999, 1999–2000, and 2000–2001 evaluations were well received by NASA CONNECT™ registrants. However, 51 percent of respondents indicated that they experienced difficulties obtaining one or more of the programs in the 2001–2002 NASA CONNECT™ series. There is no way to know exactly what type of difficulty these respondents experienced because there are no follow-up questions on this topic. Inquiries as to the type of difficulties respondents experience receiving the programs should be included in the next program year evaluation. Once specific areas of difficulty are identified, the sources of that difficulty may be addressed.

Also in the next program year evaluation, an additional effort should be directed to determining the low use of the NASA CONNECT™ web-based activities. The 2001–2002 NASA CONNECT™ program year data lead one to conclude that the activities are educationally sound. If such is the case, what factors explain why the NASA CONNECT™ web-based activities are not used more? What steps can be taken to increase their use? In addition, some of the instructional technology questions still appear to be confusing. Despite attempts to “clarify” these questions, it appears that respondents are still having difficulty answering them. Lastly, there is a concern that has become especially apparent this year and must be addressed. This concern involves the steady decrease of returned surveys from one year to the next. Steps should be taken to find the cause of this disturbing trend and correct it. Perhaps a change in the

type of incentive offered to respondents should be examined. On the other hand, those who do return surveys rate NASA CONNECT™ very highly and continue to do so from year to year with little variation. Collectively, these data support the continued production of NASA CONNECT™.

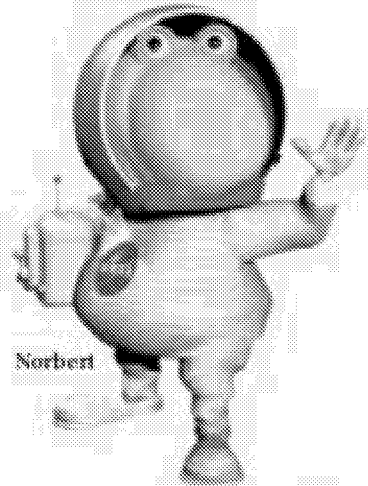
References

- 1998-1999 Technology Purchasing Forecast. *Quality Education Data*, 1998.
- Ariza, E. N.; Knee, R. H.; and Ridge, M. L.: Uniting Teachers to Embrace 21st Century Technology: A Critical Mass in a Cohort of Colleagues. *THE Journal (Technological Horizons in Education)*, May 2000, p. 22.
- CEO Forum, Key Building Blocks for Student Achievement in the 21st Century: Assessment, Alignment, Accountability, Access, Analysis. *School Technology and Reading Report*, June 2001.
- Coley, R.; Cradler, J.; and Engel, P.: Computers and Classrooms: The Status of Technology in U.S. Schools. *Educational Testing Service, Policy Information Center*, 1998.
- Hawkes, M. L.: Evaluating School-Based Distance Education Programs: Some Thoughts About Methods. *Bulletin*, Oct. 1996.
- Hazari, S.; and Schnorr, D.: Leveraging Student Feedback To Improve Teaching in Web-Based Courses. Internet/Web/Online Service Information. *THE Journal (Technological Horizons in Education)*, vol. 26, no. 11, June 1, 1999, p. 30.
- Internet Access in Public Schools and Classrooms: 1994-98. *National Center for Education Statistics*, U.S. Department of Education, Office of Educational Research and Improvement, Feb. 1999, NCES, 1999-017.
- Pinelli, T.; Frank, K. L.; and House, P.: *Evaluating the Effectiveness of the 1998-1999 NASA CONNECT™ Program Series*. NASA TM-2000-210542, Sept. 2000.
- Pinelli, T.; Frank, K. L.; and Waheed, M.: NASA CONNECT™: Three Years After the First Broadcast. *2000 Telecon East Conference*, Washington, D.C., 2000.
- Ramirez, A.: Assessment-Driven Reform: The Emperor Still Has No Clothes, *Phi Delta Kappan*, vol. 81, no. 3, 1999, p. 204.
- Thomas, K.: Technology Should Be Elementary to Pupils, *USA Today*, June 27, 2000 (available at <<http://www.usatoday.com/life/cyber/tech/cti154.htm>>) Accessed Sept. 2000.
- Wade, W.: What Do Students Know and How Do We Know That They Know It? *THE Journal (Technological Horizons in Education)*, vol. 27, no. 3, Oct. 1, 1999, p. 94.
- What important issues in educational technology will help shape the next millennium? News Briefs, *THE Journal (Technological Horizons in Education)*, vol. 27, no. 6, Jan. 1, 2000, p. 46.

Appendix A

2001–2002 NASA CONNECT™ Evaluation Booklet

EVALUATION BOOKLET



NASA CONNECT

A research-based, Emmy award-winning,
standards-based, integrated mathematics, science,
and technology distance learning program
for grades 6-8 produced by
the NASA Langley Research Center,
Hampton, VA.

Evaluating the Effectiveness
of the
2001-2002 NASA CONNECT
Program Series

**INSTRUCTIONAL TECHNOLOGY
AND TEACHING**

Please indicate (circle the number) the extent to which you disagree or agree with the following statements about instructional technology and classroom teaching.

Instructional technology . . .

1. enables teachers to teach more effectively.

Disagree				Agree	No Opinion
1	2	3	4	5	9

2. enables teachers to accommodate different learning styles.

Disagree				Agree	No Opinion
1	2	3	4	5	9

3. enables teachers to be more creative.

Disagree				Agree	No Opinion
1	2	3	4	5	9

4. increases student learning and comprehension.

Disagree				Agree	No Opinion
1	2	3	4	5	9

5. increases student willingness to discuss content/exchange ideas.

Disagree				Agree	No Opinion
1	2	3	4	5	9

6. increases student motivation and enthusiasm for learning.

Disagree				Agree	No Opinion
1	2	3	4	5	9

7. is effective with virtually all types of students.

Disagree				Agree	No Opinion
1	2	3	4	5	9

**INSTRUCTIONAL PROGRAMMING
AND TECHNOLOGY IN THE CLASSROOM**

Please indicate the extent to which you disagree or agree with the following statements about instructional programming and technology.

8. Increasingly, schools have greater access to instructional programs.

Disagree				Agree		No Opinion
1	2	3	4	5		9

9. The majority of these programs are of good quality.

Disagree				Agree		No Opinion
1	2	3	4	5		9

10. The majority of these programs are **not** appropriate (i.e., too advanced or too basic) for my students.

Disagree				Agree		No Opinion
1	2	3	4	5		9

11. The majority of these programs are **not** easily broken into "teachable" units.

Disagree				Agree		No Opinion
1	2	3	4	5		9

12. Administrators support and encourage teachers to use instructional technology in the classroom.

Disagree				Agree		No Opinion
1	2	3	4	5		9

13. Classrooms are growing increasingly rich in instructional technology.

Disagree				Agree		No Opinion
1	2	3	4	5		9

14. Teachers are generally positive about introducing/using instructional technology in the classroom.

Disagree				Agree		No Opinion
1	2	3	4	5		9

**INSTRUCTIONAL PROGRAMMING
AND TECHNOLOGY IN THE CLASSROOM**

15. Which of the following factors are barriers to integrating technology into your instructional program? (Check all that apply.)
- ☐ Not enough or limited access to computers.
 - ☐ Not enough computer software.
 - ☐ Purchased software has not been installed.
 - ☐ Lack of time in school schedule for technology projects.
 - ☐ Lack of technical support for technology projects.
 - ☐ Lack of teacher training opportunities for technology projects.
 - ☐ Lack of knowledge concerning methods of integrating technology into the curriculum.
16. Do you use instructional programming in your classroom?
- ☐ Yes ☐ No - Go to Q21
17. Compared to other instructional programming, the quality of NASA CONNECT is
- ☐ Better than average
 - ☐ About average
 - ☐ Worse than average
 - ☐ I'm unable to judge
18. Compared to the curriculum/lesson guides in other instructional programming, the quality of the NASA CONNECT curriculum/lesson guide is
- ☐ Better than average
 - ☐ About average
 - ☐ Worse than average
 - ☐ I'm unable to judge
19. Compared to the video in other instructional programming, the quality of the video in NASA CONNECT is
- ☐ Better than average
 - ☐ About average
 - ☐ Worse than average
 - ☐ I'm unable to judge
20. Compared to the web-based activities in other instructional programming, the quality of the web-based activities in NASA CONNECT is
- ☐ Better than average
 - ☐ About average
 - ☐ Worse than average
 - ☐ I'm unable to judge

TELEVISION/VIDEO PROGRAMS

The following questions pertain to the five programs in the 2001-2002 NASA CONNECT series.

21. Did you use the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. Safety First	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 3,2,1..Crash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Future Flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Glow with the Flow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ahead, Above...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Wired for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Solar Blast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ISS: Up to Us	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Dressed for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. If you selected "yes," please (✓) indicate how these programs were used.

	Program				
	1	2	3	4	5
a. To introduce a curriculum topic, objective, or skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. To reinforce a curriculum topic, objective, or skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. As a special interest topic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. As a break from classroom routine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. If you selected "yes," for question 16, please indicate how these programs were viewed. (Please check "✓.")

	Program				
	1	2	3	4	5
a. Live	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Taped	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Both	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Not viewed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. How did you receive the program? (Please check "✓.")

	Yes	No
1. PBS	<input type="checkbox"/>	<input type="checkbox"/>
2. Downlinked it	<input type="checkbox"/>	<input type="checkbox"/>
3. Media Specialist taped it	<input type="checkbox"/>	<input type="checkbox"/>
4. I or someone else taped it	<input type="checkbox"/>	<input type="checkbox"/>
5. NASA sent me the tapes	<input type="checkbox"/>	<input type="checkbox"/>
6. Other (please specify) _____		

TELEVISION/VIDEO PROGRAMS, CONT.

25. Did you experience difficulty obtaining any of the programs in the 2001-2002 NASA CONNECT series? (Please check "✓.")

☐ Yes ☐ No

26. If you selected "yes," for question 16, please indicate the grade level(s) that viewed the programs. (Please circle.)

3 4 5 6 7 8 9 10 11 12

Please indicate the extent to which you disagree or agree with the following statements concerning the nine programs in the 2001-2002 NASA CONNECT series.

27. The programs were of good artistic quality.

Disagree				Agree		No Opinion
1	2	3	4	5		9

28. The programs were of good technical quality.

Disagree				Agree		No Opinion
1	2	3	4	5		9

29. The programs enabled me to accommodate different learning styles.

Disagree				Agree		No Opinion
1	2	3	4	5		9

30. The programs increased student willingness to discuss/exchange ideas.

Disagree				Agree		No Opinion
1	2	3	4	5		9

31. The programs increased student enthusiasm for learning.

Disagree				Agree		No Opinion
1	2	3	4	5		9

32. The programs were effective with virtually all types of students.

Disagree				Agree		No Opinion
1	2	3	4	5		9

33. The programs were a valuable instructional aid.

Disagree				Agree		No Opinion
1	2	3	4	5		9

TELEVISION/VIDEO PROGRAMS, CONCL.

34. The programs were developmentally appropriate for the grade level.

Disagree				Agree		No Opinion
1	2	3	4	5		9

35. The programs were easily incorporated into the curriculum.

Disagree				Agree		No Opinion
1	2	3	4	5		9

36. The programs enhanced the integration of mathematics, science, and technology.

Disagree				Agree		No Opinion
1	2	3	4	5		9

37. The programs raised student awareness of careers that require mathematics, science, and technology.

Disagree				Agree		No Opinion
1	2	3	4	5		9

38. The programs demonstrated the application of mathematics, science, and technology on the job.

Disagree				Agree		No Opinion
1	2	3	4	5		9

39. The programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills.

Disagree				Agree		No Opinion
1	2	3	4	5		9

40. The programs illustrated the integration of workplace mathematics, science, and technology.

Disagree				Agree		No Opinion
1	2	3	4	5		9

41. The programs presented women and minorities performing challenging engineering and scientific tasks.

Disagree				Agree		No Opinion
1	2	3	4	5		9

42. The programs were a positive link between the classroom activity and the web-based activity.

Disagree				Agree		No Opinion
1	2	3	4	5		9

LESSON GUIDE

Please indicate the extent to which you disagree or agree with the following statements concerning the printed lesson guides used for the nine programs in the 2001-2002 NASA CONNECT series.

43. Did you use the lesson guides for the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. Safety First	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 3,2,1...Crash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Future Flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Glow with the Flow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ahead, Above...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Wired for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Solar Blast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ISS: Up to Us	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Dressed for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Guides **not received** or **not received** in time ☐

44. If no, please explain and then proceed to question #54:

45. The directions/instructions in the lesson guides were easily understood.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

46. The layout of the lesson guides presented the information clearly.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

47. The lesson guides were a valuable instructional aid.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

48. The print and electronic resources in the lesson guide were a valuable instructional aid.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

LESSON GUIDES, CONCL.

49. The cue cards provided a positive link between the video and the lesson guide.

Disagree				Agree		No Opinion
1	2	3	4	5		9

50. The teacher "background" portion of the lesson guide was a valuable instructional aid.

Disagree				Agree		No Opinion
1	2	3	4	5		9

51. The lesson guide was easy to download from the Internet.

Disagree				Agree		Did Not Download
1	2	3	4	5		9

52. If the lesson guides were only available in electronic format,

		Yes	No
could you use them on	CD-ROM	<input type="checkbox"/>	<input type="checkbox"/>
	DVD	<input type="checkbox"/>	<input type="checkbox"/>
would you use them on	CD-ROM	<input type="checkbox"/>	<input type="checkbox"/>
	DVD	<input type="checkbox"/>	<input type="checkbox"/>

53. Please add any other comments you have concerning the lesson guides:

CLASSROOM ACTIVITY

Please indicate the extent to which you disagree or agree with the following statements concerning the nine classroom activities used in the 2001-2002 NASA CONNECT series.

54. Did you use the classroom activity for the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. Safety First	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 3,2,1...Crash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Future Flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Glow with the Flow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ahead, Above...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Wired for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Solar Blast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ISS: Up to Us	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Dressed for Space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

55. If no, please explain and then proceed to question #61.

56. The classroom activity (experiment) was easily incorporated into my lesson plan.

Disagree				Agree		No Opinion
1	2	3	4	5		9

57. The classroom activity (experiment) complemented the lesson for each show.

Disagree				Agree		No Opinion
1	2	3	4	5		9

58. The classroom activity (experiment) was developmentally appropriate for the grade level.

Disagree				Agree		No Opinion
1	2	3	4	5		9

59. The classroom activities (experiments) were easy for me to use.

Disagree				Agree		No Opinion
1	2	3	4	5		9

CLASSROOM ACTIVITY, CONCL.

60. Please add any other comments you have concerning the classroom activity:

WEB-BASED ACTIVITY

Please indicate the extent to which you disagree or agree with the following statements concerning the online activities posted on the 2001-2002 NASA CONNECT series web site. (*e.g., Edutour, M.A.X.*)

61. Did you use the web-based activity for the following programs? (Please check "✓.")

Program	Yes	No	No, but I may in the future
1. Destination Math	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Ed.u.tour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Plane Math	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. M.A.X. Explorer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hurricane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I.P.P.E.X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. PBL Activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Space Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Materials Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

62. If no, please explain and then proceed to question #79.

63. If yes, approximately how many times?

64. The content of the web-based activities was easily integrated into the curriculum.

Disagree				Agree		No Opinion
1	2	3	4	5		9

65. The content of the web-based activities enhanced the integration of mathematics, science, and technology.

Disagree				Agree		No Opinion
1	2	3	4	5		9

66. The web-based activities raised student awareness of careers that require mathematics, science, and technological knowledge.

Disagree				Agree		No Opinion
1	2	3	4	5		9

WEB-BASED ACTIVITY, CONT.

67. If you selected "yes" for question 61, please indicate the grade level(s) that used the web-based activity. (Please circle.)

3 4 5 6 7 8 9 10 11 12

68. Students were able to complete the web-based activities in a reasonable amount of time.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

69. The web-based activities accommodated various learning styles.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

70. The content for the web-based activities was appropriate for my students.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

71. The graphics for the web-based activities were appropriate for my students.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

72. The web-based activities enhanced the integration of mathematics, science, and technology

Disagree		Agree	No Opinion
1 2 3 4	5	9	

73. The web-based activities had a good balance of text and graphics.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

74. The web-based activities allowed my students to work at their own pace.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

75. The web-based activities will likely be revisited/reused.

Disagree		Agree	No Opinion
1 2 3 4	5	9	

WEB-BASED ACTIVITY, CONCL.

76. More online activities should be available
on the NASA CONNECT web site. (Please circle.)

Disagree				Agree	No Opinion
1	2	3	4	5	9

77. Did you or your students use Norbert's Lab?

Yes No

78. Please add any other comments you have
concerning the web-based activity:

NASA CONNECT WEB SITE

The following questions pertain to the web site for the 2001-2002 NASA CONNECT series. Please indicate the extent to which you disagree or agree with the following statements.

79. The NASA CONNECT web site is visually appealing.

Disagree				Agree	No Opinion
1	2	3	4	5	9

80. There is a good balance between text and graphics on the web site.

Disagree				Agree	No Opinion
1	2	3	4	5	9

81. The web site is easily navigated.

Disagree				Agree	No Opinion
1	2	3	4	5	9

82. When viewed on my monitor, the web site is clearly legible.

Disagree				Agree	No Opinion
1	2	3	4	5	9

83. The web site is designed so that printouts of individual pages are legible.

Disagree				Agree	No Opinion
1	2	3	4	5	9

84. Pages within the web site download quickly.

Disagree				Agree	No Opinion
1	2	3	4	5	9

85. The page lengths are appropriate.

Disagree				Agree	No Opinion
1	2	3	4	5	9

86. The links to other sites/pages are current.

Disagree				Agree	No Opinion
1	2	3	4	5	9

OVERALL ASSESSMENT

Please indicate the extent to which you disagree or agree with the following statements concerning the nine programs in the 2001-2002 NASA CONNECT series.

87. The programs met their stated objectives.

Disagree				Agree	No Opinion
1	2	3	4	5	9

88. The program content was developmentally appropriate for the grade level.

Disagree				Agree	No Opinion
1	2	3	4	5	9

89. The program content was aligned with the national mathematics, science, and technology standards.

Disagree				Agree	No Opinion
1	2	3	4	5	9

90. The program content was easily integrated into the curriculum.

Disagree				Agree	No Opinion
1	2	3	4	5	9

91. The program content enhanced the teaching of mathematics, science, and technology.

Disagree				Agree	No Opinion
1	2	3	4	5	9

92. The programs raised student awareness about careers that require mathematics, science, and technology.

Disagree				Agree	No Opinion
1	2	3	4	5	9

93. The programs presented the application of mathematics, science, and technology on the job.

Disagree				Agree	No Opinion
1	2	3	4	5	9

94. The programs presented workplace mathematics, science, and technology as a collaborative process.

Disagree				Agree	No Opinion
1	2	3	4	5	9

OVERALL ASSESSMENT, CONCL.

95. The programs presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills.

Disagree				Agree		No Opinion
1	2	3	4	5	9	

96. The programs presented women and minorities performing challenging engineering and science tasks.

Disagree				Agree		No Opinion
1	2	3	4	5	9	

97. Have you recommended NASA CONNECT to a colleague?

☐ Yes ☐ No

98. One of the goals of NASA CONNECT is to educate and inform others about what NASA does. Do you think NASA CONNECT has been successful in this regard?

☐ Yes ☐ No

99. In your opinion is the information about NASA contained in NASA CONNECT

☐ Very credible
☐ Somewhat credible
☐ Not credible
☐ I'm unable to judge

COMPUTERS AND ASSOCIATED TECHNOLOGY

The following questions pertain to your classroom, your school, and your home.

100. Do you have the following equipment in your _____? (Please check all that apply.)

	classroom	school	home
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VCR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video camera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laserdisc player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video editing equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DVD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

101. Does your computer have the following in your _____? (Please check all that apply.)

	school	home
CD-ROM	<input type="checkbox"/>	<input type="checkbox"/>
Internet connection	<input type="checkbox"/>	<input type="checkbox"/>
DVD	<input type="checkbox"/>	<input type="checkbox"/>

102. How many computers are in your classroom? (Please enter a number below.)

_____ (if "0," proceed to question #107)

103. The operating system used on your classroom computers is
☐ Macintosh ☐ Windows ☐ Both ☐ Other _____

104. In a given month, about how many times does a typical student use a computer in your class? (Please check.)
☐ 1-5 times ☐ 6-10 times ☐ 11-20 times
☐ 21-40 times ☐ 41 + times

105. Generally speaking, how do the students operate the computers in your classroom? (Please check.)
☐ one student per computer
☐ in pairs (2)
☐ in groups of 3 - 5
☐ as a class
☐ other _____

COMPUTERS AND ASSOCIATED TECHNOLOGY

106. My classroom connection to the Internet uses a_____. (Please check.)

- ☐ 28.8 modem
☐ 56-K flex modem
☐ cable mode
☐ T-1 line
☐ do not have one
☐ do not know

107. The school-based technology training provided by my school division improved my computer technology skills.

Disagree	Agree	No	No school-based
		Opinion	training provided
1 2 3 4 5		7	9

108. Which of the following are among the objectives you have for student computer use? (Please check all that apply.)

- ☐ Higher order thinking skills
☐ Mastering skills just taught
☐ Remediation of skills not learned well
☐ Expressing ideas in writing
☐ Communicating electronically with others
☐ Finding out about ideas and information
☐ Analyzing information
☐ Presenting information to an audience
☐ Improving computer skills
☐ Learning to work collaboratively
☐ Learning to work independently
☐ Other (describe)_____

109. In which of these ways do you use computers to prepare lessons or in other professional activities? (Please check.)

a. to record or calculate student grades

- ☐ Do not use
☐ Occasionally
☐ Weekly
☐ More often

b. to make handouts for students

- ☐ Do not use
☐ Occasionally
☐ Weekly
☐ More often

COMPUTERS AND ASSOCIATED TECHNOLOGY

- c. to correspond with parents
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

- d. to write lesson plans or related notes
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

- e. to get information or pictures from the Internet for use in lessons
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

- f. to use camcorders, digital cameras, or scanners to prepare for class
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

- g. to exchange computer files with other teachers
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

- h. to post student work, suggestions for resources, or ideas and opinions on the World Wide Web
 - ☐ Do not use
 - ☐ Occasionally
 - ☐ Weekly
 - ☐ More often

DEMOGRAPHICS

These questions will be used to determine whether survey respondents with different backgrounds and characteristics have different opinions regarding instructional technology and NASA CONNECT.
(Please check the appropriate response.)

110. Gender?

- ☐ Female ☐ Male

111. Present professional duties?

(Please check all that apply.)

- ☐ Teacher
☐ Home Schooler
☐ Technology Program Coordinator
☐ Principal
☐ Math Coordinator
☐ Science Coordinator
☐ Librarian/Media Specialist
☐ Community College Instructor
☐ College/University Instructor
☐ Distance Learning Coordinator
☐ Curriculum Coordinator
☐ Other (please specify)_____

112. School type? (Please check only one.)

- ☐ College/University
☐ Community College
☐ Home School
☐ Native American School
☐ Private/Parochial
☐ Public

113. School location? (Please check only one.)

- ☐ Rural
☐ Suburban
☐ Urban

114. Highest degree?

- ☐ High School Diploma/Equivalency
☐ Associates (2-year)
☐ Baccalaureate (BA/BS)
☐ Masters/Masters Equivalency
☐ Education Specialist
☐ Doctorate

DEMOGRAPHICS

115. Ethnicity? (Please check only one.)

- ☐ African American
☐ Asian
☐ Caucasian
☐ Hispanic
☐ Native American
☐ Pacific Islander
☐ Other (please specify) _____

116. How many years have you been a professional educator or home schooler? (Please enter number below.)

117. Your age? (Please enter number below.)

118. Do you own a personal computer?

- ☐ Yes ☐ No

119. Are you a member of a professional (national) education organization (e.g., ASDC, NMSA, NCTM, NSTA)?

- ☐ Yes ☐ No

120. Number of years you have used NASA CONNECT (Please enter a number below.)

Thank you for your assistance.

In appreciation for having assisted us, we are pleased to offer you a copy of the 2001-2002 NASA CONNECT assessment report. To receive your free copy of the assessment report, please check the box to the right. ☐

With your assistance, the NASA Langley Research Center is providing the educational community with quality integrated mathematics, science, and technology instructional distance learning programming for grades 6-8.

Please return to
NASA CONNECT
Mail Stop 400 DL
NASA Langley Research Center
Hampton, VA 23681-2199

Appendix B

Comments Returned With Blank Evaluation Booklets

Serial number	Inappropriate: If recipients of the 2001–2002 NASA CONNECT™ evaluation booklet were unable to adequately assess the program and its components (i.e., they were not able to fit the program into the curriculum), they were asked to write “inappropriate.”
8	Inappropriate. HS Grades 9-12
59	Inappropriate
79	Please discontinue our school's participation in NASA CONNECT.
85	Inappropriate
114	Inappropriate
115	Inappropriate
116	Inappropriate
148	Inappropriate. I've just graduated and haven't had the opportunity to use this program.. However, I enjoy receiving the materials and will use them as soon as I'm able.
167	Inappropriate
220	Inappropriate
276	Inappropriate. I have tried but am unable to get NASA Direct in Milwaukee. It is not carried by PBS in Madison either. Please help.
279	Inappropriate
282	Inappropriate
303	Inappropriate. After I started to fill this out I realized it was not the series I used. My class used the Why Files and really enjoyed them. Sorry.
341	Inappropriate. I did not have access to this year's broadcast.
363	Inappropriate
414	Inappropriate. See Letter that was enclosed.
482	Inappropriate. Melissa is no longer here.
500	Inappropriate
541	Inappropriate. Our school did not get connected to the internet this year as planned.
558	Inappropriate
579	Inappropriate. I teach high school chemistry.
596	Inappropriate. Does not apply. I only made available to department.
607	Inappropriate. PBS station
628	Inappropriate. I honestly have not had a chance to utilize any of the program resources. This is my second year of teaching with a different curriculum each year. Rich now, I am a bit overwhelmed in the classroom and will do my best to take advantage of the material.
664	Inappropriate
674	Inappropriate. I registered late...early April!
688	Inappropriate. I am not in a position to answer these questions at this time. I have not used any of the items mentioned here-in. This is my first year of home schooling, and my instructional methods are only developing. I answered a few questions.

Serial number	Inappropriate: If recipients of the 2001–2002 NASA CONNECT™ evaluation booklet were unable to adequately assess the program and its components (i.e., they were not able to fit the program into the curriculum), they were asked to write “inappropriate.”
---------------	---

727	Inappropriate
813	Inappropriate. I send your stiff out to other Virginia Educators to get them connected.
866	Inappropriate
878	Inappropriate
892	Inappropriate
900	Inappropriate
919	Inappropriate. Unfortunately there was no local station that I could download the videos. We were not able to use the program this year.
927	Inappropriate
938	Inappropriate. Thank you but NA. Too high level for my students (ESL) 2-5
940	Inappropriate
961	I love the NASA Videos and was thrilled to learn about the web site however, we were unable to navigate the web site. What I did see on the site looked great. We will try it again in about two months. I will be glad to take this survey again later.

Appendix C

Solicited Comments to Qualitative Questions

Serial number	Question 24: If you used programs in the 2001–2002 NASA CONNECT™ series, please indicate how they were received. If they were received in a manner not specified (see question 18b in “Assessment Report Charts and Graphs”), respondents were asked to specify how materials were received.
---------------	--

262	sat dish
479	Unable to receive.
485	space camp
514	unable to obtain programs
582	from NASA center Omaha
621	borrowed from AIAA
962	Instructional TV (local) channel.

Serial number	Question 44: If you did not use the lesson guides for the 2001–2002 NASA CONNECT™ programs, please explain.
---------------	---

2	I did not receive the guides.
9	did not view programs
52	didn't have time to integrate into lesson plans
72	I had difficulty getting NASA CONNECT and as a result did not use any lesson guides.
79	We have not used any of the NASA Connect materials--as this is not a match to the curriculum for students at our level.
84	We did not have a fast enough connection. We just have a cable modem installed.
118	Did not know program and materials were available.
151	I would if I had them
216	Testing plus lack of time due to other curricular requirements this year.
226	Couldn't get the program on video.
284	Did not use the units.
315	My son is homeschooled in 4th grade. Plan on using next year if I can get videos.
401	I didn't teach science this year.
479	Unable to download programs.
493	Not received in time.
514	I was unable to obtain the programs, therefore unable to use the lesson guides.

Serial number	Question 44: If you did not use the lesson guides for the 2001–2002 NASA CONNECT™ programs, please explain.
---------------	---

536	Did not receive any, except for safety first/ Kids love the posters and colors.
543	Did not receive guides.
571	Used some aspects- but downlinks and getting tapes is difficult here-would like tapes sent if possible. Reproduction Quality not good here.
582	My computer is not able to download "PDF"! Thank you for sending them to me by snail mail.
584	guide not received
589	I only cover astronomy for 1 quarter and received most of the materials late.
598	used older lessons - I can't get new lessons taped off.
621	I did not receive guides from programs that were repeats of previous years' programs - had to download them.
637	because the topics didn't go with the curriculum level I was teaching this year
638	emails concerning running times came too close to air time - no time to integrate into programs - (lessons) already in progress
644	Never received any after the first one.
646	I used the videos as motivators and focusing tools. Not enough class time to do all in the videos.
652	downloading problems, printer problems, mail problems
702	Dressed for Space - not received - maybe in June??
710	There was just no time this year to use the program - I did pass it on to other teachers.
725	I have been substituting but I have not been in my own classroom to fully incorporate this curriculum. I have used elements of it effectively and plan to use it more fully.
731	Did not use program but may incorporate lesson in future classes or other classes.
781	Some guides not received in time for the lessons were prior to the program. Please continue the program.
808	I team teach and was not the one teaching math, science, or social studies.
815	we never received the guides
827	Our science was already planned for the 01-02 school year. All guides are being integrated into our 02-03 school year.
832	I did not have the guide.
835	No money to buy it.
847	Videos were used as lesson enhancements/and a break from traditional classroom presentation.
853	Did not receive tapes or guides - would like to have both.
859	got late in the year.
867	Incorporated the concept of the tapes into support for classroom study in Algebra/Geometry.
909	Only 1 guide received. Could easily access free tapes/broadcasts.
922	Could not follow time on SOL driven schedule.

Serial number	Question 44: If you did not use the lesson guides for the 2001–2002 NASA CONNECT™ programs, please explain.
---------------	---

924	it was hard to use the lessons w/o video. My school did not have cable access in my classroom.
936	I am a media specialist so I don't use only facilitate. I am trying to introduce the teachers to your programs.
961	Our printer is not operational at this time.
998	Requested too late, but those on math were good.

Serial number	Question 53: Please add any other comments you have concerning the lesson guides.
---------------	---

63	It would be nice if the lesson guides contained more information regarding assessment (alternatives) and extensions of the lesson.
118	I've never seen them.
398	Thank you! What a valuable service!
454	Since I do homeschool, some of the materials were difficult to obtain (we are a very low-budget operation) and Maggie's PC has not been fully operational this year. Still planning to finish modules this summer. Some activities are group activities and
576	I used a lot of the technology in programming as a springboard to jump into lesson or to use as an extension to the lessons.
582	We have no DVD players.
621	(52) I would point out the lesson guides to use them - I find it easier to plan, make notes, etc. on a hard copy.
644	I am so disappointed. When I attended the NASA New program, I learned about that program, & was ready to use it. I received a video & guide for program 1. I received guide for #2. I received NOTHING after that. WHYY-12, Philadelphia's PBS affiliate
651	they were excellent and tie in wonderfully with state standards!
706	We do not have the technological capacity to use most of the lessons available.
731	We had computer problems all year. It seemed to be a day to day ordeal (will computers work today or not?) This is still a good program.
738	The guides are great!
835	They are great. What a tool for learning.

Serial number	Question 53: Please add any other comments you have concerning the lesson guides.
---------------	---

853	Would like to obtain tapes and guides
929	I downloaded the ones that fit our curriculum (models & Designs) but our hardware is very old, so it was difficult & time consuming
961	I have not used the lesson guides yet. We are resting for the summer. I plan to use them in the future. I will also pass tapes & plans to other homeschool families.
962	Most useful with teachers to help them see the integration of science, mathematics and technology in the world.
998	The lesson guide was very good since it gives students loud one.

Serial number	Question 55: If you did not use the classroom activities for the 2001–2002 NASA CONNECT™ programs, please explain.
---------------	--

2	I did not receive the guides.
52	time limit
72	Was unable to get NASA CONNECT with reasonable effort.
79	No programs used.
84	We did not have a fast enough connection. We just have a cable modem installed.
216	Time
260	Never received
315	Planning on using for 5th grade, Next Year
401	I didn't teach science this year.
411	I registered visited the web site several times early in the year when I had time to plan. Then - when I couldn't find the programs and forgot about it and moved to something else - Space Ed!
472	It was difficult to find PBS run programming.
485	Time
493	Not received in time.
514	again unable to do activities to obtain the programs.
543	With no paperwork it is hard to proceed.
584	created own activities
598	no - I used and enjoyed the wind tunnel activity - old
629	not math curriculum

Serial number	Question 55: If you did not use the classroom activities for the 2001–2002 NASA CONNECT™ programs, please explain.
---------------	--

639	not enough time
644	(see #3)
646	I need to develop plans to incorporate the activities. They take a lot of class time.
702	Did not download.
706	Not applicable for my students.
710	no time
725	see answer to #44.
731	I have so much to cover in the curriculum, that I can not possibly use all material available-but I might cover material next year.
781	Timing is not quite right this time through.
808	see answer to #44
815	we didn't have the materials (directions, guides)
827	Guides will be used in the 02-03 school year.
832	I did not receive the activities.
847	used on trial basis; have used other activities provided.
853	need programs
859	got late in the year
867	(same as #44)
889	I have not received the program tapes.
922	SOL's took precedence.
924	I could use it w/o video.
936	Media specialist

Serial number	Question 60: Please add any other comments you have concerning the classroom activity:
---------------	--

36	Very good!
536	Great info and the kids love the colors, made them want to learn.
576	As a NEW 2001 I had great insight on the abilities of technology and program the GREAT and Wonderous work NASA put out. GREAT Job!
582	Thank you for creating these classroom activities! Especially with the budget cuts in our state and school district.
621	the classroom activities were the best part of the program!
638	implementation difficult for middle school certified with no emphasis in Science
738	students love them many and varied.
929	the students really enjoyed the chapters, planes, and math that went with it.
961	I need teaching aids that the child can use without my assistance. The more they are able to teach themselves, the better.

Serial number	Question 62: If you did not use the web-based activities for the 2001–2002 NASA CONNECT™ season, please explain.
---------------	--

63	1 computer for 25 students - too complicated and time consuming to incorporate.
72	I was unable to get NASA CONNECT.
78	time restrictions
79	Not used.
84	We did not have a fast enough connection. We just have a cable modem installed.
106	No internet access in room.
118	Did not know program or materials were available.
120	Do not have access to web in classroom.
216	Time
226	I didn't know there were any.
260	I didn't know about them.
284	could not access the web at time units were in progress.
315	Son only in 4th grade
327	I was only doing my student teaching and time did not allow for me to incorporate all aspects.

Serial number	Question 62: If you did not use the web-based activities for the 2001–2002 NASA CONNECT™ season, please explain.
---------------	--

359	web - very limited
401	I didn't teach science this year.
454	PC was down
485	Time!
493	School's web server down much of the time & time constraints.
514	I don't have sufficient web access in the classroom.
536	was not notified!
584	Did not receive information on these to use.
588	Not enough terminals/monitors.
589	I was not aware of these activities
598	no - didn't get to Foil Sim
637	I didn't have access to the internet for most of the year.
638	not enough prior notification
646	students don't have class-size access to the web in school.
702	Did not have web-based access in the classroom for each class (-6-7-8)
705	I don't have the teaching time.
731	Not enough time in the year.
781	These sites have not yet been explored by my class in general.
790	I do not have the net in my room yet, so I wasn't able to use the web based activities
808	again I was not the one taking the lead in science or math. see #44
815	was not aware of them
827	We do not have access to the internet, but are considering it for the next year.
832	The computer is old and takes a long time to download.
847	no classroom connection to the WEB.
867	(same as #44)
915	Was not clear on how to use.
922	Time factor-computer availability
929	Not enough computers to access
936	Media specialist
961	We tried and could not get access or I could not find the above games.
962	Only referred them to teachers in staff development sessions.
998	Requested too late.

Serial number	Question 78: Please add any other comments you have concerning the web-based activity:
---------------	--

2	Keep up the good work.
271	on their own at home
454	I saw some of them and was eager for Maggie to try, but PC problems interfered.
629	Our computer network problems caused our problems.
706	We do not have the computer technology available to participate.
781	I will be looking closely at your site this summer!
853	would like TRAINING offered on using NASA program
961	My child found the site difficult to navigate.
962	I looked at it once or twice.

Serial number	Question 108: Respondents were asked to mark their objectives for student computer use on a checklist. If respondents marked "other," they were asked to specify their "other" objectives. The following are the objectives for student computer use.
---------------	---

72	Collect data electronically.
536	Accessibility to vast amounts of information
731	Using the computer for work instead of surfing the net Idly to kill time.
781	learning research skills
867	Research of new ideas

Serial number	Question 111: Respondents were asked to mark their present professional duties on a checklist. If the respondents marked "other," they were asked to specify their "other" professional duty. The following are the duties generated from the question.
---------------	---

327	Student Teacher
401	Reading Specialist
571	Starbase Atlantis DOD Science Program
572	Tech Committee Member
588	Aerospace Instr.
598	Enrichment Specialist
725	substitute teacher and after hours tutor
812	Gifted
832	Doctoral Student, Reading Specialist
909	Director of Education
962	Staff Development Teacher on Assignment.
973	Educational Consultant

Serial number	Question 115: Respondents were asked to mark their ethnicity from a checklist. If the respondents marked "other," they were asked to specify. The following comments were generated from this inquiry.
---------------	--

5	other
472	Not specified.
752	Not Specified.

Appendix D

Unsolicited Qualitative Comments

Serial number	Additional Comments: These are comments collected from the evaluation that were not solicited, but were added by the respondent to provide additional information, explanation, or opinion.
79	Please discontinue our school's participation in NASA CONNECT.
315	Thank you for sending the program to me.
359	Change address . Thank you!
549	Budget cuts hurt placement of technology in classes.
582	A huge thanks for having the Weekly NASA explores lessons, especially for K-4, 5-8, 9-12. I have a variety of students levels - so the lessons are a super great help to me!! Keep up the great work!!
644	Please Note: You can show your appreciation by: telling me when I can tape NASA Connect in Philadelphia, or provide me with tapes of all broadcasts and teacher guides which I never received. I am looking forward to your response.
781	I thought that I had sent this already but found it today.
835	NASA Contact: Thank you for sending me the NASA CONNECT disk.
961	I love the NASA Videos and was thrilled to learn about the web site; however, we were unable to navigate the web site. What I did see on the site looked great. We will try it again in about two months. I will be glad to take this survey again later.

Appendix E

Longitudinal Data

Instructional Programming and Technology in the Classroom

Instructional technology enables teachers to teach more effectively.

	98-99	99-00	00-01	01-02
Mean	4.51	4.55	4.44	4.58
Median	5.00	5.00	5.00	5.00
Standard deviation	0.76	0.71	0.77	0.64
Minimum	1.00	2.00	3.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	290.00	263.00	123.00	109.00
No opinion	4.00	0.00	0.00	2.00

Longitudinal mean

4.52

Instructional technology enables teachers to accommodate different learning styles.

	98-99	99-00	00-01	01-02
Mean	4.51	4.51	4.58	4.47
Median	5.00	5.00	5.00	5.00
Standard deviation	0.73	0.69	0.61	0.75
Minimum	1.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	293.00	263.00	123.00	108.00
No opinion	1.00	0.00	1.00	3.00

Longitudinal mean

4.52

Instructional technology enables teachers to be more creative.

	98-99	99-00	00-01	01-02
Mean	4.55	4.66	4.61	4.50
Median	5.00	5.00	5.00	5.00
Standard deviation	0.74	0.56	0.65	0.81
Minimum	1.00	2.00	2.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	293.00	262.00	124.00	111.00
No opinion	0.00	1.00	0.00	1.00

Longitudinal mean

4.58

Instructional technology increases student learning and comprehension.

	98-99	99-00	00-01	01-02
Mean	4.41	4.44	4.30	4.37
Median	5.00	5.00	5.00	5.00
Standard deviation	0.75	0.70	0.81	0.76
Minimum	2.00	3.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	289.00	263.00	124.00	111.00
No opinion	5.00	0.00	0.00	1.00

Longitudinal mean

4.38

Instructional technology increases student willingness to discuss content/exchange ideas.

	98-99	99-00	00-01	01-02
Mean	4.23	4.29	4.18	4.19
Median	4.00	4.00	4.00	4.00
Standard deviation	0.88	0.79	0.86	0.83
Minimum	1.00	2.00	1.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	292.00	256.00	123.00	110.00
No opinion	2.00	6.00	1.00	1.00

Longitudinal mean

4.22

Instructional technology increases student motivation and enthusiasm for learning.

	98-99	99-00	00-01	01-02
Mean	4.51	4.50	4.45	4.48
Median	5.00	5.00	5.00	5.00
Standard deviation	0.73	0.66	0.70	0.75
Minimum	2.00	3.00	3.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	291.00	261.00	124.00	112.00
No opinion	2.00	1.00	0.00	0.00

Longitudinal mean

4.49

Instructional technology is effective with virtually all types of students.

	98-99	99-00	00-01	01-02
Mean	4.07	4.02	3.98	3.99
Median	4.00	4.00	4.00	4.00
Standard deviation	1.05	1.01	1.09	0.97
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	287.00	262.00	124.00	108.00
No opinion	7.00	1.00	0.00	4.00

Longitudinal mean

4.02

Increasingly, schools have greater access to instructional programs.

	98-99	99-00	00-01	01-02
Mean	4.25	4.01	4.10	3.91
Median	4.00	4.00	4.00	4.00
Standard deviation	0.85	0.98	1.01	1.00
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	290.00	261.00	124.00	110.00
No opinion	3.00	3.00	1.00	4.00

Longitudinal mean

4.07

Most of these programs are of good quality.

	98-99	99-00	00-01	01-02
Mean	3.86	3.76	3.94	3.53
Median	4.00	4.00	4.00	4.00
Standard deviation	0.92	0.88	0.84	1.03
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	284.00	254.00	123.00	110.00
No opinion	10.00	9.00	2.00	4.00

Longitudinal mean

3.77

Most of these programs are not appropriate (i.e., too advanced or too basic for my students).

	98-99	99-00	00-01	01-02
Mean	2.65	2.89	2.57	2.64
Median	3.00	3.00	2.00	3.00
Standard deviation	1.10	1.15	1.07	1.08
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	272.00	244.00	122.00	104.00
No opinion	21.00	19.00	3.00	10.00

Longitudinal mean

2.69

Most of these programs are not easily broken into “teachable” units.

	98-99	99-00	00-01	01-02
Mean	2.78	2.91	2.64	2.97
Median	3.00	3.00	3.00	3.00
Standard deviation	1.24	1.23	1.10	1.28
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	275.00	245.00	120.00	99.00
No opinion	19.00	20.00	4.00	14.00

Longitudinal mean

2.82

Administrators support and encourage teachers to use instructional technology in the classroom.

	98-99	99-00	00-01	01-02
Mean	4.13	3.93	4.07	3.82
Median	5.00	4.00	4.00	4.00
Standard deviation	1.07	1.18	1.09	1.14
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	279.00	254.00	121.00	102.00
No opinion	15.00	8.00	4.00	11.00

Longitudinal mean

3.99

Classrooms are growing increasingly rich in instructional technology.

	98-99	99-00	00-01	01-02
Mean	3.60	3.68	3.48	3.54
Median	4.00	4.00	4.00	4.00
Standard deviation	1.09	1.13	1.06	1.09
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	289.00	262.00	125.00	107.00
No opinion	5.00	3.00	0.00	7.00

Longitudinal mean

3.57

Teachers are generally positive about introducing/using instructional technology in the classroom.

	98-99	99-00	00-01	01-02
Mean	3.37	3.38	3.46	3.32
Median	3.00	3.00	3.00	3.00
Standard deviation	1.02	1.10	0.98	1.00
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	288.00	263.00	124.00	108.00
No opinion	6.00	2.00	0.00	6.00

Longitudinal mean

3.38

Which of the following factors are barriers to integrating technology into your instructional program?
(Check all that apply.)

	98-99	99-00	00-01	01-02
# Respondents	No data	262.00	120.00	152.00
Not enough or limited access...		207.00	100.00	87.00
		79.01%	83.33%	57.24%
Not enough computer software.		152.00	73.00	62.00
		58.02%	60.83%	40.79%
Purchased software has not...		47.00	13.00	15.00
		17.94%	10.83%	9.87%
Lack of time in school...		167.00	79.00	65.00
		63.74%	65.83%	42.76%
Lack of technical support...		122.00	50.00	48.00
		46.56%	41.67%	31.58%
Lack of teacher training...		137.00	63.00	48.00
		52.29%	52.50%	31.58%
Lack of knowledge concerning...		130.00	56.00	43.00
		49.62%	46.67%	28.29%

Longitudinal
averages

73.19%

53.21%

12.88%

57.45%

39.94%

45.46%

41.52%

Do you use instructional programming in your classroom?

	98-99	99-00	00-01	01-02
	No data	No data	No data	
Yes				69.00
No				41.00
n =				110.00

Compared to other instructional programming, the quality of NASA CONNECT™ is...

	98-99	99-00	00-01	01-02
	No data	No data	No data	
better than average				59.00
about average				11.00
worse than average				0.00
I'm unable to judge				4.00

Compared to the curriculum/lesson guides in other instructional programming, the quality of the NASA CONNECT™ curriculum/lesson guide is...

	98-99	99-00	00-01	01-02
	No data	No data	No data	
better than average				51.00
about average				18.00
worse than average				0.00
I'm unable to judge				5.00

Compared to the video in other instructional programming, the quality of the video in NASA CONNECT™ is...

	98-99	99-00	00-01	01-02
	No data	No data	No data	
better than average				52.00
about average				12.00
worse than average				0.00
I'm unable to judge				10.00

Compared to the web-based activities in other instructional programming, the quality of the web-based activities in NASA CONNECT™ is...

	98-99	99-00	00-01	01-02
	No data	No data	No data	
better than average				51.00
about average				10.00
worse than average				0.00
I'm unable to judge				12.00

Television/Video Programs

Did you use the following programs?

	98-99	99-00	00-01	01-02
	No data			
Program 1				
yes		108.00	57.00	21.00
no		28.00	15.00	27.00
no, but I may in future		109.00	43.00	50.00
Program 2				
yes		79.00	37.00	24.00
no		33.00	25.00	21.00
no, but I may in future		119.00	48.00	54.00
Program 3				
yes		66.00	45.00	25.00
no		44.00	18.00	19.00
no, but I may in future		133.00	51.00	54.00
Program 4				
yes		41.00	37.00	11.00
no		46.00	25.00	26.00
no, but I may in future		135.00	48.00	56.00
Program 5				
yes		65.00	20.00	9.00
no		37.00	28.00	26.00
no, but I may in future		136.00	60.00	55.00
Program 6				
yes		52.00		17.00
no		39.00		24.00
no, but I may in future		133.00		56.00
Program 7				
yes		46.00		18.00
no		53.00		19.00
no, but I may in future		132.00		59.00
Program 8				
yes				16.00
no				22.00
no, but I may in future				57.00
Program 9				
yes				22.00
no				20.00
no, but I may in future				54.00

If you selected “yes” (to having used the video programs), please indicate how these programs were used.

	98-99	99-00	00-01	01-02
	No data			
Program 1				
a. to introduce a curriculum topic, objective, or skill		59.00	28.00	15.00
b. to reinforce a curriculum topic, objective, or skill		66.00	30.00	16.00
c. as a special interest topic		37.00	30.00	14.00
d. other		15.00	2.00	No data
e. break from routine		No data	No data	11.00
Program 2				
a. to introduce a curriculum topic, objective, or skill		32.00	14.00	6.00
b. to reinforce a curriculum topic, objective, or skill		51.00	21.00	12.00
c. as a special interest topic		26.00	5.00	9.00
d. other		9.00	3.00	No data
e. break from routine		No data	No data	4.00
Program 3				
a. to introduce a curriculum topic, objective, or skill		23.00	18.00	9.00
b. to reinforce a curriculum topic, objective, or skill		40.00	27.00	13.00
c. as a special interest topic		24.00	9.00	11.00
d. other		8.00	2.00	No data
e. break from routine		No data	No data	8.00
Program 4				
a. to introduce a curriculum topic, objective, or skill		17.00	9.00	3.00
b. to reinforce a curriculum topic, objective, or skill		29.00	23.00	9.00
c. as a special interest topic		23.00	7.00	9.00
d. other		9.00	2.00	No data
e. break from routine		No data	No data	5.00
Program 5				
a. to introduce a curriculum topic, objective, or skill		28.00	12.00	1.00
b. to reinforce a curriculum topic, objective, or skill		37.00	9.00	7.00
c. as a special interest topic		26.00	3.00	10.00
d. other		7.00	2.00	No data
e. break from routine		No data	No data	6.00
Program 6				
a. to introduce a curriculum topic, objective, or skill		18.00		
b. to reinforce a curriculum topic, objective, or skill		33.00		
c. as a special interest topic		19.00		
d. other		7.00		
Program 7				
a. to introduce a curriculum topic, objective, or skill		17.00		
b. to reinforce a curriculum topic, objective, or skill		24.00		
c. as a special interest topic		21.00		
d. other		8.00		

If you selected “yes” for having used the video programs, please indicate how these programs were viewed...

	98-99	99-00	00-01	01-02
	No data			
Program 1				
a. live		8.00	4.00	2.00
b. taped		87.00	42.00	27.00
c. both		2.00	2.00	5.00
d. not viewed		15.00	9.00	6.00
Program 2				
a. live		7.00	1.00	1.00
b. taped		69.00	27.00	18.00
c. both		2.00	1.00	2.00
d. not viewed		14.00	5.00	8.00
Program 3				
a. live		6.00	1.00	1.00
b. taped		52.00	34.00	16.00
c. both		2.00	2.00	3.00
d. not viewed		15.00	9.00	6.00
Program 4				
a. live		9.00	2.00	0.00
b. taped		43.00	24.00	12.00
c. both		3.00	1.00	1.00
d. not viewed		16.00	10.00	6.00
Program 5				
a. live		4.00	0.00	1.00
b. taped		56.00	19.00	13.00
c. both		2.00	0.00	1.00
d. not viewed		16.00	10.00	6.00
Program 6				No further programs
a. live		5.00		
b. taped		44.00		
c. both		2.00		
d. not viewed		19.00		
Program 7				
a. live		3.00		
b. taped		40.00		
c. both		3.00		
d. not viewed		22.00		

How did you receive the program?

	98-99	99-00	00-01	01-02
PBS	No data	46.00	13.00	15.00
Downlinked it		18.00	2.00	8.00
Media Specialist taped it		56.00	22.00	17.00
I, or someone else taped it		42.00	29.00	23.00
NASA sent me the tapes		45.00	19.00	17.00

Did you experience difficulty obtaining any of the programs in the 2000–2001 NASA CONNECT™ series?

	98-99	99-00	00-01	01-02
% who had difficulty	No data			
Yes		50.93%	41.11%	50.53%
No		110.00	37.00	48.00
n =		106.00	53.00	47.00
		216.00	90.00	95.00

Longitudinal mean

47.52%

If you selected “yes” for having viewed the video programs, please indicate the grade level(s) that viewed the programs.

	98-99	99-00	00-01	01-02
Grades				
3rd	19.00	4.00	1.00	7.00
4th	75.00	9.00	8.00	10.00
5th	97.00	17.00	17.00	20.00
6th	92.00	40.00	17.00	19.00
7th	70.00	26.00	14.00	18.00
8th	78.00	39.00	12.00	15.00
9th	14.00	22.00	3.00	10.00
10th	7.00	15.00	2.00	8.00
11th	5.00	13.00	3.00	8.00
12th	5.00	12.00	4.00	6.00

The programs were of good artistic quality.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.36	4.39	4.45
Median		4.00	5.00	5.00
Standard deviation		0.70	0.69	0.68
Minimum		1.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		168.00	71.00	69.00
No opinion		43.00	14.00	25.00

Longitudinal mean

4.40

The programs were of good technical quality.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.49	4.56	4.51
Median		5.00	5.00	5.00
Standard deviation		0.64	0.60	0.75
Minimum		1.00	3.00	2.00
Maximum		5.00	5.00	5.00
Count		172.00	71.00	71.00
No opinion		42.00	15.00	25.00

Longitudinal mean

4.52

The programs enabled me to accommodate different learning styles.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.17	4.21	4.31
Median		4.00	4.00	4.00
Standard deviation		0.78	0.83	0.72
Minimum		2.00	1.00	2.00
Maximum		5.00	5.00	5.00
Count		168.00	70.00	67.00
No opinion		46.00	15.00	29.00

Longitudinal mean

4.23

The programs increased student willingness to discuss/exchange ideas.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.18	4.25	4.24
Median		4.00	4.00	4.00
Standard deviation		0.80	0.74	0.77
Minimum		2.00	2.00	2.00
Maximum		5.00	5.00	5.00
Count		162.00	69.00	66.00
No opinion		52.00	16.00	30.00

Longitudinal mean

4.22

The programs increased student enthusiasm for learning.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.25	4.29	4.38
Median		4.00	4.00	4.00
Standard deviation		0.76	0.80	0.69
Minimum		2.00	2.00	3.00
Maximum		5.00	5.00	5.00
Count		161.00	70.00	69.00
No opinion		53.00	15.00	26.00

Longitudinal mean

4.30

The programs were effective with virtually all types of students.

	98-99	99-00	00-01	01-02
	No data			
Mean		3.99	3.84	4.15
Median		4.00	4.00	4.00
Standard deviation		0.96	1.06	0.76
Minimum		2.00	1.00	2.00
Maximum		5.00	5.00	5.00
Count		159.00	70.00	67.00
No opinion		54.00	15.00	29.00

Longitudinal mean

3.99

The programs were a valuable instructional aid.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.44	4.47	4.58
Median		5.00	5.00	5.00
Standard deviation		0.72	0.68	0.65
Minimum		2.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		168.00	70.00	69.00
No opinion		47.00	16.00	27.00

Longitudinal mean

4.50

The programs were developmentally appropriate for the grade level.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.06	3.88	4.36
Median		4.00	4.00	5.00
Standard deviation		0.91	0.81	0.87
Minimum		1.00	2.00	1.00
Maximum		5.00	5.00	5.00
Count		164.00	66.00	69.00
No opinion		43.00	16.00	27.00

Longitudinal mean

4.10

The programs were easily incorporated into the curriculum.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.08	4.03	3.99
Median		4.00	4.00	4.00
Standard deviation		0.93	0.86	1.04
Minimum		2.00	2.00	1.00
Maximum		5.00	5.00	5.00
Count		160.00	69.00	69.00
No opinion		46.00	14.00	27.00

Longitudinal mean

4.03

The programs enhanced the integration of mathematics, science, and technology.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.55	4.57	4.56
Median		5.00	5.00	5.00
Standard deviation		0.67	0.61	0.68
Minimum		2.00	3.00	2.00
Maximum		5.00	5.00	5.00
Count		166.00	69.00	68.00
No opinion		41.00	16.00	28.00

Longitudinal mean

4.56

The programs raised student awareness of careers that require mathematics, science, and technology.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.52	4.56	4.54
Median		5.00	5.00	5.00
Standard deviation		0.69	0.63	0.64
Minimum		2.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		164.00	68.00	67.00
No opinion		43.00	16.00	29.00

Longitudinal mean

4.54

The programs demonstrated the application of mathematics, science, and technology on the job.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.62	4.61	4.63
Median		5.00	5.00	5.00
Standard deviation		0.61	0.63	0.62
Minimum		3.00	3.00	2.00
Maximum		5.00	5.00	5.00
Count		165.00	66.00	67.00
No opinion		42.00	15.00	28.00

Longitudinal mean

4.62

The programs presented mathematics, science, and technology as disciplines requiring creativity, critical thinking, and problem-solving skills.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.56	4.68	4.64
Median		5.00	5.00	5.00
Standard deviation		0.57	0.53	0.57
Minimum		3.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		165.00	68.00	67.00
No opinion		42.00	15.00	28.00

Longitudinal mean

4.63

The programs illustrated the integration of workplace mathematics, science, and technology.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.59	4.58	4.64
Median		5.00	5.00	5.00
Standard deviation		0.59	0.60	0.65
Minimum		3.00	3.00	2.00
Maximum		5.00	5.00	5.00
Count		167.00	69.00	66.00
No opinion		42.00	14.00	29.00

Longitudinal mean

4.60

The programs presented women and minorities performing challenging engineering and scientific tasks.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.51	4.47	4.55
Median		5.00	5.00	5.00
Standard deviation		0.61	0.66	0.58
Minimum		2.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		162.00	68.00	67.00
No opinion		45.00	15.00	29.00

Longitudinal mean

4.51

The programs were a positive link between the classroom activity and the web-based activity.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.38	4.34	4.46
Median		5.00	4.00	5.00
Standard deviation		0.74	0.74	0.67
Minimum		2.00	2.00	2.00
Maximum		5.00	5.00	5.00
Count		136.00	64.00	61.00
No opinion		71.00	19.00	34.00

Longitudinal mean

4.39

Lesson Guides

Did you use the lesson guides for the following programs?

	98-99	99-00	00-01	01-02
Program 1	No data			
yes		109.00	65.00	21.00
no		23.00	7.00	17.00
no, but I may in future		87.00	34.00	49.00
Program 2				
yes		89.00	44.00	22.00
no		22.00	13.00	19.00
no, but I may in future		94.00	42.00	49.00
Program 3				
yes		67.00	50.00	24.00
no		35.00	14.00	17.00
no, but I may in future		104.00	39.00	49.00
Program 4				
yes		50.00	42.00	13.00
no		32.00	14.00	21.00
no, but I may in future		113.00	41.00	51.00
Program 5				
yes		66.00	29.00	9.00
no		33.00	17.00	23.00
no, but I may in future		105.00	48.00	48.00
Program 6				
yes		55.00		17.00
no		32.00		19.00
no, but I may in future		109.00		53.00
Program 7				
yes		44.00		15.00
no		43.00		17.00
no, but I may in future		109.00		55.00
Program 8				
yes				13.00
no				21.00
no, but I may in future				54.00
Program 9				
yes				19.00
no				18.00
no, but I may in future				52.00

The directions/instructions in the lesson guides were easily understood.

	98-99	99-00	00-01	01-02
Mean	4.16	4.44	4.28	4.23
Median	4.00	5.00	4.00	4.00
Standard deviation	0.86	0.76	0.75	0.81
Minimum	1.00	1.00	2.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	208.00	171.00	85.00	48.00
No opinion	1.00	18.00	6.00	19.00

Longitudinal mean

4.28

The layout of the lesson guides presented the information clearly.

	98-99	99-00	00-01	01-02
Mean	4.28	4.42	4.31	4.43
Median	4.00	5.00	4.00	5.00
Standard deviation	0.78	0.75	0.75	0.74
Minimum	1.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	208.00	172.00	85.00	56.00
No opinion	1.00	19.00	6.00	10.00

Longitudinal mean

4.36

The lesson guides were a valuable instructional aid.

	98-99	99-00	00-01	01-02
Mean	4.40	4.52	4.36	4.44
Median	5.00	5.00	5.00	5.00
Standard deviation	0.72	0.71	0.75	0.71
Minimum	2.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	206.00	170.00	84.00	55.00
No opinion	3.00	21.00	6.00	11.00

Longitudinal mean

4.43

The print and electronic resources in the lesson guide were a valuable instructional aid.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.47	4.27	4.40
Median		5.00	4.00	5.00
Standard deviation		0.70	0.77	0.95
Minimum		2.00	3.00	1.00
Maximum		5.00	5.00	5.00
Count		159.00	81.00	50.00
No opinion		30.00	8.00	27.00

Longitudinal mean

4.38

The cue cards provided a positive link between the video and the lesson guide.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.23	4.16	4.23
Median		4.00	4.00	4.00
Standard deviation		0.90	0.83	0.81
Minimum		1.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		124.00	56.00	48.00
No opinion		61.00	27.00	19.00

Longitudinal mean

4.21

The teacher “background” portion of the lesson guide was a valuable instructional aid.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.54	4.48	4.48
Median		5.00	5.00	5.00
Standard deviation		0.70	0.75	0.72
Minimum		1.00	3.00	2.00
Maximum		5.00	5.00	5.00
Count		158.00	80.00	54.00
No opinion		30.00	9.00	13.00

Longitudinal mean

4.50

The lesson guide was easy to download from the Internet.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.13	4.00	4.08
Median		5.00	4.00	5.00
Standard deviation		1.23	1.13	1.23
Minimum		1.00	1.00	1.00
Maximum		5.00	5.00	5.00
Count		89.00	34.00	40.00
No opinion		95.00	55.00	27.00

Longitudinal mean

4.07

If the lesson guides were only available in electronic format, could you and would you use them?

	98-99	99-00	00-01	01-02
Could you use them:				
on CD-ROM				53.00
on DVD				13.00
Would you use them:				
on CD-ROM				53.00
on DVD				13.00

Classroom Activities

Did you use the classroom activity for the following programs?

	98-99	99-00	00-01	01-02
Program 1	No data			
yes		94.00	60.00	20.00
no		27.00	10.00	14.00
no, but I may in future		103.00	38.00	55.00
Program 2				
yes		74.00	37.00	21.00
no		27.00	17.00	13.00
no, but I may in future		105.00	47.00	54.00
Program 3				
yes		49.00	43.00	22.00
no		32.00	15.00	13.00
no, but I may in future		126.00	44.00	54.00
Program 4				
yes		36.00	38.00	8.00
no		30.00	17.00	18.00
no, but I may in future		123.00	41.00	58.00
Program 5				
yes		53.00	28.00	6.00
no		31.00	19.00	19.00
no, but I may in future		121.00	45.00	56.00
Program 6				
yes		43.00		11.00
no		26.00		17.00
no, but I may in future		122.00		59.00
Program 7				
yes		34.00		15.00
no		33.00		13.00
no, but I may in future		127.00		57.00
Program 8				
yes				14.00
no				15.00
no, but I may in future				58.00
Program 9				
yes				18.00
no				13.00
no, but I may in future				57.00

The classroom activity (experiment) was easily incorporated into my lesson plan.

	98-99	99-00	00-01	01-02
Mean	3.97	4.22	3.92	4.18
Median	4.00	4.00	4.00	4.00
Standard deviation	0.90	0.89	0.93	0.83
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	182.00	134.00	72.00	49.00
No opinion	4.00	33.00	12.00	12.00

Longitudinal mean

4.07

The classroom activity (experiment) complemented the lesson for each show.

	98-99	99-00	00-01	01-02
Mean	4.39	4.46	4.20	4.39
Median	5.00	5.00	4.00	5.00
Standard deviation	0.71	0.70	0.80	0.74
Minimum	2.00	1.00	2.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	171.00	124.00	64.00	46.00
No opinion	12.00	41.00	19.00	15.00

Longitudinal mean

4.36

The classroom activity (experiment) was developmentally appropriate for the grade level.

	98-99	99-00	00-01	01-02
Mean	4.22	4.17	3.76	4.29
Median	4.00	4.00	4.00	4.00
Standard deviation	0.83	0.87	1.08	0.74
Minimum	1.00	1.00	1.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	180.00	131.00	72.00	49.00
No opinion	5.00	33.00	11.00	13.00

Longitudinal mean

4.11

The classroom activities (experiments) were easy for me to use.

	98-99	99-00	00-01	01-02
No data				
Mean		4.49	3.86	4.34
Median		4.00	4.00	4.00
Standard deviation		3.10	1.07	0.64
Minimum		1.00	1.00	3.00
Maximum		5.00	5.00	5.00
Count		129.00	73.00	47.00
No opinion		38.00	10.00	15.00

Longitudinal mean

4.23

Web-Based Activities

Did you use the web-based activity for the following programs?

	98-99	99-00	00-01	01-02
Program 1	No data			
yes		19.00	6.00	6.00
no		62.00	40.00	31.00
no, but I may in future		129.00	54.00	46.00
Program 2				
yes		18.00	4.00	6.00
no		56.00	40.00	31.00
no, but I may in future		132.00	55.00	44.00
Program 3				
yes		27.00	3.00	8.00
no		55.00	40.00	29.00
no, but I may in future		136.00	56.00	46.00
Program 4				
yes		4.00	15.00	4.00
no		63.00	33.00	32.00
no, but I may in future		132.00	51.00	46.00
Program 5				
yes		14.00	5.00	5.00
no		60.00	39.00	32.00
no, but I may in future		128.00	54.00	44.00
Program 6				
yes		28.00		2.00
no		50.00		31.00
no, but I may in future		135.00		48.00
Program 7				
yes		21.00		1.00
no		58.00		31.00
no, but I may in future		134.00		47.00
Program 8				
yes				13.00
no				28.00
no, but I may in future				44.00
Program 9				
yes				9.00
no				28.00
no, but I may in future				46.00

The content of the web-based activities was easily integrated into the curriculum.

	98-99	99-00	00-01	01-02
Mean	3.98	4.09	3.83	4.30
Median	4.00	4.00	4.00	5.00
Standard deviation	0.94	1.00	0.79	1.03
Minimum	1.00	1.00	2.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	59.00	64.00	18.00	27.00
No opinion	5.00	55.00	21.00	18.00

Longitudinal mean

4.05

The content of the web-based activities enhanced the integration of mathematics, science, and technology.

	98-99	99-00	00-01	01-02
Mean	No data			
Median		4.37	3.94	4.44
Standard deviation		5.00	4.00	5.00
Minimum		0.79	1.00	0.82
Maximum		2.00	2.00	2.00
Count		5.00	5.00	5.00
No opinion		62.00	18.00	25.00
		58.00	21.00	20.00

Longitudinal mean

4.25

The web-based activities raised student awareness of careers that require mathematical, scientific, and technological knowledge.

	98-99	99-00	00-01	01-02
Mean	4.33	4.34	4.17	4.40
Median	4.00	5.00	5.00	5.00
Standard deviation	0.79	0.81	1.04	0.96
Minimum	2.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	57.00	58.00	18.00	25.00
No opinion	7.00	56.00	21.00	20.00

Longitudinal mean

4.31

If you selected “yes” for having used the web-based activities, please indicate the grade level(s) that used them.

	98-99	99-00	00-01	01-02
Grades	No data			
3rd		2.00	1.00	2.00
4th		6.00	3.00	2.00
5th		4.00	6.00	10.00
6th		14.00	5.00	5.00
7th		14.00	5.00	5.00
8th		19.00	5.00	8.00
9th		9.00	0.00	2.00
10th		7.00	0.00	2.00
11th		6.00	0.00	2.00
12th		4.00	0.00	2.00

Students were able to complete the web-based activities in a reasonable amount of time.

	98-99	99-00	00-01	01-02
	No data			
Mean		3.86	3.94	4.30
Median		4.00	4.00	5.00
Standard deviation		1.18	0.83	0.82
Minimum		1.00	2.00	3.00
Maximum		5.00	5.00	5.00
Count		51.00	17.00	27.00
No opinion		57.00	18.00	15.00

Longitudinal mean

4.03

The web-based activities accommodated various learning styles.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.14	4.00	4.30
Median		4.00	4.00	4.00
Standard deviation		0.93	0.91	0.78
Minimum		2.00	2.00	3.00
Maximum		5.00	5.00	5.00
Count		57.00	18.00	27.00
No opinion		54.00	17.00	15.00

Longitudinal mean

4.15

The content for the web-based activities was appropriate for my students.

	98-99	99-00	00-01	01-02
Mean	3.92	4.04	3.88	4.36
Median	4.00	4.00	4.00	5.00
Standard deviation	0.89	0.94	0.86	0.87
Minimum	2.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	60.00	57.00	17.00	28.00
No opinion	4.00	54.00	17.00	14.00

Longitudinal mean

4.05

The graphics for the web-based activities were appropriate for my students.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.16	4.17	4.32
Median		4.00	4.00	5.00
Standard deviation		0.88	0.79	0.86
Minimum		2.00	2.00	3.00
Maximum		5.00	5.00	5.00
Count		55.00	18.00	28.00
No opinion		56.00	17.00	14.00

Longitudinal mean

4.22

The web-based activities enhanced the integration of mathematics, science, and technology.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.64	4.17	4.54
Median		5.00	4.00	5.00
Standard deviation		0.69	0.79	0.64
Minimum		3.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		56.00	18.00	28.00
No opinion		55.00	17.00	14.00

Longitudinal mean

4.45

The web-based activities had a good balance of text and graphics.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.32	4.41	4.48
Median		5.00	5.00	5.00
Standard deviation		0.79	0.71	0.78
Minimum		2.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		56.00	17.00	29.00
No opinion		55.00	18.00	13.00

Longitudinal mean

4.41

The web-based activities allowed my students to work at their own pace.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.13	4.11	4.33
Median		4.00	4.00	5.00
Standard deviation		0.86	0.96	0.78
Minimum		2.00	2.00	3.00
Maximum		5.00	5.00	5.00
Count		52.00	18.00	27.00
No opinion		58.00	17.00	15.00

Longitudinal mean

4.19

The web-based activities will likely be revisited/reused.

	98-99	99-00	00-01	01-02
	No data			
Mean		4.36	4.47	4.50
Median		5.00	5.00	5.00
Standard deviation		0.95	0.72	0.69
Minimum		1.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		58.00	17.00	28.00
No opinion		53.00	18.00	13.00

Longitudinal mean

4.44

More online activities should be available on the NASA CONNECT™ web site.

	98-99	99-00	00-01	01-02
Mean	4.72	4.64	4.42	4.56
Median	5.00	5.00	5.00	5.00
Standard deviation	0.52	0.76	0.72	0.67
Minimum	3.00	1.00	3.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	61.00	81.00	31.00	32.00
No opinion	3.00	32.00	8.00	13.00

Longitudinal mean

4.59

Did you or your students use Norbert's Lab?

	98-99	99-00	00-01	01-02
No Data				
Yes		25.00	5.00	10.00
No		86.00	32.00	31.00
n =		111.00	37.00	41.00

NASA CONNECT™ Web Site

The NASA CONNECT™ web site is visually appealing.

	98-99	99-00	00-01	01-02
Mean	4.50	4.58	4.55	4.56
Median	5.00	5.00	5.00	5.00
Standard deviation	0.62	0.62	0.58	0.67
Minimum	3.00	2.00	3.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	135.00	166.00	71.00	81.00
No opinion	4.00	32.00	19.00	15.00

Longitudinal mean

4.55

There is a good balance between text and graphics on the web site.

	98-99	99-00	00-01	01-02
Mean	4.38	4.49	4.41	4.37
Median	4.00	5.00	5.00	5.00
Standard deviation	0.68	0.65	0.71	0.78
Minimum	2.00	2.00	2.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	127.00	164.00	69.00	81.00
No opinion	12.00	37.00	19.00	14.00

Longitudinal mean

4.41

The web site is easily navigated.

	98-99	99-00	00-01	01-02
Mean	4.34	4.43	4.38	4.32
Median	4.00	5.00	5.00	5.00
Standard deviation	0.77	0.77	0.79	0.83
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	134.00	163.00	69.00	81.00
No opinion	5.00	37.00	20.00	12.00

Longitudinal mean

4.37

When viewed on my monitor, the web site is clearly legible.

	98-99	99-00	00-01	01-02
Mean	4.51	4.58	4.48	4.49
Median	5.00	5.00	5.00	5.00
Standard deviation	0.61	0.66	0.72	0.74
Minimum	3.00	1.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	134.00	164.00	69.00	84.00
No opinion	5.00	37.00	20.00	12.00

Longitudinal mean

4.51

The web site is designed so that printouts of individual pages are legible.

	98-99	99-00	00-01	01-02
Mean	4.45	4.50	4.52	4.38
Median	5.00	5.00	5.00	4.00
Standard deviation	0.69	0.82	0.59	0.74
Minimum	2.00	1.00	3.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	116.00	151.00	64.00	71.00
No opinion	23.00	50.00	25.00	23.00

Longitudinal mean

4.46

Pages within the web site download quickly.

	98-99	99-00	00-01	01-02
Mean	3.87	4.09	4.12	3.99
Median	4.00	4.00	4.00	4.00
Standard deviation	1.04	0.95	0.95	1.10
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	121.00	148.00	61.00	75.00
No opinion	17.00	53.00	28.00	21.00

Longitudinal mean

4.02

The page lengths are appropriate.

	98-99	99-00	00-01	01-02
Mean	No data	4.42	4.33	4.38
Median		5.00	5.00	5.00
Standard deviation		0.68	0.81	0.77
Minimum		3.00	1.00	2.00
Maximum		5.00	5.00	5.00
Count		153.00	66.00	74.00
No opinion		48.00	23.00	21.00

Longitudinal mean

4.38

The links to other sites/pages are current.

	98-99	99-00	00-01	01-02
	No Data			
Mean		4.41	4.37	4.38
Median		5.00	5.00	5.00
Standard deviation		0.76	0.74	0.78
Minimum		1.00	3.00	1.00
Maximum		5.00	5.00	5.00
Count		148.00	65.00	73.00
No opinion		53.00	24.00	22.00

Longitudinal mean

4.39

Overall Assessment

The programs met their stated objectives.

	98-99	99-00	00-01	01-02
Mean	4.49	4.54	4.52	4.51
Median	5.00	5.00	5.00	5.00
Standard deviation	0.66	0.68	0.67	0.65
Minimum	2.00	1.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	270.00	188.00	93.00	74.00
No opinion	17.00	33.00	12.00	24.00

Longitudinal mean

4.52

The program content was developmentally appropriate for the grade level.

	98-99	99-00	00-01	01-02
Mean	4.25	4.17	4.08	4.38
Median	4.00	4.00	4.00	5.00
Standard deviation	0.85	0.89	0.90	0.77
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	268.00	196.00	95.00	79.00
No opinion	17.00	25.00	10.00	19.00

Longitudinal mean

4.22

The program content was aligned with the national mathematics, science, and technology standards.

	98-99	99-00	00-01	01-02
Mean	4.61	4.57	4.62	4.62
Median	5.00	5.00	5.00	5.00
Standard deviation	0.60	0.60	0.61	0.59
Minimum	3.00	3.00	3.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	257.00	192.00	94.00	77.00
No opinion	30.00	31.00	11.00	21.00

Longitudinal mean

4.60

The program content was easily integrated into the curriculum.

	98-99	99-00	00-01	01-02
Mean	4.09	4.14	3.97	4.26
Median	4.00	4.00	4.00	5.00
Standard deviation	0.90	1.00	1.00	0.94
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Count	267.00	189.00	94.00	77.00
No opinion	20.00	33.00	10.00	20.00

Longitudinal mean

4.11

The program content enhanced the teaching of mathematics, science, and technology.

	98-99	99-00	00-01	01-02
Mean	4.45	4.51	4.47	4.42
Median	5.00	5.00	5.00	5.00
Standard deviation	0.69	0.69	0.65	0.77
Minimum	2.00	2.00	3.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	267.00	193.00	92.00	77.00
No opinion	20.00	27.00	12.00	21.00

Longitudinal mean

4.46

The programs raised student awareness about careers that require mathematics, science, and technology.

	98-99	99-00	00-01	01-02
Mean	4.44	4.54	4.43	4.43
Median	5.00	5.00	5.00	5.00
Standard deviation	0.68	0.66	0.75	0.77
Minimum	2.00	2.00	1.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	262.00	190.00	90.00	77.00
No opinion	23.00	31.00	15.00	21.00

Longitudinal mean

4.46

The programs presented the application of mathematics, science, and technology on the job.

	98-99	99-00	00-01	01-02
Mean	4.49	4.55	4.42	4.51
Median	5.00	5.00	5.00	5.00
Standard deviation	0.67	0.60	0.72	0.68
Minimum	2.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	269.00	193.00	94.00	78.00
No opinion	18.00	26.00	11.00	20.00

Longitudinal mean

4.49

The programs presented workplace mathematics, science, and technology as a collaborative process.

	98-99	99-00	00-01	01-02
Mean	4.42	4.59	4.39	4.52
Median	5.00	5.00	5.00	5.00
Standard deviation	0.69	0.60	0.78	0.70
Minimum	2.00	2.00	2.00	2.00
Maximum	5.00	5.00	5.00	5.00
Count	267.00	190.00	92.00	77.00
No opinion	20.00	30.00	13.00	21.00

Longitudinal mean

4.48

The programs presented mathematics, science, and technology as a process requiring creativity, critical thinking, and problem-solving skills.

	98-99	99-00	00-01	01-02
Mean	4.58	4.63	4.56	4.52
Median	5.00	5.00	5.00	5.00
Standard deviation	0.63	0.56	0.68	0.66
Minimum	3.00	2.00	2.00	3.00
Maximum	5.00	5.00	5.00	5.00
Count	270.00	193.00	95.00	77.00
No opinion	17.00	28.00	10.00	20.00

Longitudinal mean

4.57

The programs presented women and minorities performing challenging engineering and science tasks.

	98-99	99-00	00-01	01-02
No data	No data			
Mean		4.55	4.43	4.53
Median		5.00	5.00	5.00
Standard deviation		0.63	0.69	0.68
Minimum		2.00	3.00	3.00
Maximum		5.00	5.00	5.00
Count		185.00	90.00	78.00
No opinion		36.00	15.00	20.00

Longitudinal mean

4.50

Have you recommended NASA CONNECT™ to a colleague?

	98-99	99-00	00-01	01-02
	No data	No data	No data	
Yes				76.00
No				20.00
n =				96.00

One of the goals of NASA CONNECT™ is to educate and inform others about what NASA does. Do you think NASA CONNECT™ has been successful in this regard?

	98-99	99-00	00-01	01-02
	No data	No data	No data	
Yes				85.00
No				8.00
n =				93.00

In your opinion is the information about NASA contained in NASA CONNECT™?

	98-99	99-00	00-01	01-02
	No data	No data	No data	
very credible				87.00
somewhat credible				4.00
not credible				0.00
I'm unable to judge				7.00

Computers and Associated Technology

Do you have the following equipment in your (classroom, school, home)?

	98-99	99-00	00-01	01-02
Television				
Classroom	236.00	206.00	97.00	85.00
School	184.00	167.00	91.00	75.00
Home	220.00	212.00	103.00	100.00
VCR				
Classroom	215.00	166.00	92.00	76.00
School	195.00	175.00	94.00	76.00
Home	219.00	199.00	99.00	100.00
Video Camera				
Classroom	40.00	35.00	26.00	11.00
School	208.00	172.00	91.00	56.00
Home	121.00	98.00	63.00	41.00
Laser disc Player				
Classroom	70.00	47.00	24.00	21.00
School	138.00	127.00	64.00	30.00
Home	25.00	27.00	10.00	8.00
Video editing equipment				
Classroom	9.00	6.00	5.00	4.00
School	74.00	66.00	32.00	23.00
Home	10.00	13.00	9.00	11.00
Computer				
Classroom	249.00	224.00	106.00	86.00
School	208.00	180.00	93.00	77.00
Home	208.00	203.00	94.00	98.00
DVD				
Classroom	No Data	15.00	8.00	9.00
School		34.00	17.00	18.00
Home		58.00	28.00	53.00

Does your computer have the following in your _____?

	98-99	99-00	00-01	01-02
CD-ROM				
Classroom	224.00	153.00	No data	No data
School	193.00	143.00	107.00	92.00
Home	196.00	72.00	52.00	96.00
Local Area Network				
Classroom	127.00	129.00	No data	No data
School	147.00	129.00	66.00	No data
Home	57.00	53.00	22.00	No data
District-Wide Network				
Classroom	124.00	189.00	No data	No data
School	129.00	178.00	70.00	No data
Home	29.00	188.00	1.00	No data
Internet connection				
Classroom	174.00	210.00	No data	No data
School	185.00	171.00	24.00	93.00
Home	168.00	193.00	64.00	97.00
DVD				
Classroom	No data	No data	No data	No data
School	No data	No data	No data	17.00
Home	No data	No data	No data	41.00

How many computers are in your classroom?

	98-99	99-00	00-01	01-02
Mean	2.97	3.12	2.82	3.81
Median	2.00	2.00	2.00	2.00
Standard deviation	4.01	3.82	2.93	5.41
Minimum	0.00	0.00	0.00	0.00
Maximum	30.00	28.00	18.00	29.00
Count	281.00	249.00	117.00	103.00

Longitudinal mean

3.18

The operating system used on your school computers is...

	98-99	99-00	00-01	01-02
Macintosh	100.00	47.00	29.00	22.00
Windows	193.00	163.00	76.00	66.00
Both	No data	29.00	10.00	11.00
Other	No data	3.00	No data	No data

In a given month, about how many times does a typical student use a computer in your class?

	98-99	99-00	00-01	01-02
1-5 times	67.00	83.00	49.00	40.00
6-10 times	75.00	56.00	12.00	28.00
11-20 times	62.00	43.00	27.00	16.00
21-40 times	39.00	36.00	16.00	9.00
41+ times	22.00	21.00	9.00	6.00

Generally speaking, how do the students operate the computers in your classroom?

	98-99	99-00	00-01	01-02
one student per	142.00	122.00	47.00	44.00
in pairs (2)	130.00	98.00	41.00	22.00
in groups of 3-5	63.00	43.00	13.00	11.00
as a class	No data	37.00	7.00	12.00
other	No data	15.00	1.00	No data

My classroom connection to the Internet uses a _____.

	98-99	99-00	00-01	01-02
28.8 modem	35.00	14.00	1.00	10.00
56-K flex modem	27.00	21.00	7.00	7.00
cable modem	35.00	19.00	18.00	15.00
T-1 line	46.00	87.00	31.00	23.00
do not have one	60.00	30.00	6.00	10.00
do not know	18.00	78.00	39.00	32.00

The school-based technology training provided by my school division improved my computer skills.

	98-99	99-00	00-01	01-02
	No data			
Mean		3.58	3.65	3.21
Median		4.00	4.00	3.00
Standard deviation		1.41	1.37	1.44
Minimum		1.00	1.00	1.00
Maximum		5.00	5.00	5.00
Count		203.00	100.00	78.00
No opinion		9.00	1.00	5.00

Longitudinal mean

3.48

Which of the following are among the objectives you have for student computer use?

	98-99	99-00	00-01	01-02
	No data	198.00	99.00	72.00
Higher order thinking skills	180.00	139.00	64.00	51.00
Mastering skills just taught	180.00	142.00	65.00	53.00
Remediation of skills not learned well	191.00	139.00	69.00	66.00
Expressing ideas in writing	121.00	101.00	43.00	41.00
Communicating electronically with others	227.00	202.00	97.00	91.00
Finding out about ideas and information	136.00	166.00	68.00	57.00
Analyzing information	114.00	136.00	54.00	54.00
Presenting information to an audience	189.00	179.00	83.00	72.00
Improving computer skills	168.00	159.00	77.00	63.00
Learning to work collaboratively	187.00	169.00	84.00	68.00
Learning to work independently				

In which of these ways do you use computers to prepare lessons or in other professional activities?

	98-99	99-00	00-01	01-02
a. to record or calculate student grades				
do not use	88.00	51.00	27.00	28.00
occasionally	50.00	22.00	29.00	12.00
weekly	71.00	52.00	29.00	20.00
more often	76.00	129.00	34.00	47.00
b. to make handouts for students				
do not use	88.00	5.00	4.00	4.00
occasionally	50.00	50.00	30.00	26.00
weekly	71.00	73.00	31.00	28.00
more often	76.00	128.00	53.00	49.00
c. to correspond with parents				
do not use	64.00	63.00	35.00	32.00
occasionally	121.00	106.00	51.00	48.00
weekly	67.00	40.00	21.00	13.00
more often	35.00	43.00	12.00	14.00
d. to write lesson plans or related notes				
do not use	55.00	36.00	17.00	14.00
occasionally	89.00	60.00	35.00	30.00
weekly	77.00	71.00	39.00	31.00
more often	64.00	90.00	28.00	33.00
e. to get information or pictures from the Internet for use in lessons				
do not use	38.00	21.00	8.00	2.00
occasionally	128.00	88.00	49.00	48.00
weekly	61.00	58.00	27.00	21.00
more often	59.00	90.00	34.00	37.00
f. to use camcorders, digital cameras, or scanners to prepare for class				
do not use	134.00	117.00	54.00	51.00
occasionally	118.00	92.00	47.00	46.00
weekly	24.00	30.00	11.00	4.00
more often	10.00	17.00	6.00	7.00
g. to exchange computer files with other teachers				
do not use	149.00	109.00	58.00	55.00
occasionally	107.00	99.00	51.00	39.00
weekly	13.00	26.00	8.00	8.00
more often	16.00	21.00	2.00	6.00
h. to post student work, suggestions for resources, or ideas/opinions on the web				
do not use	201.00	167.00	72.00	78.00
occasionally	61.00	60.00	37.00	20.00
weekly	16.00	14.00	8.00	7.00
more often	8.00	13.00	2.00	3.00

Demographics

Gender

	98-99	99-00	00-01	01-02
Male	68.00	71.00	30.00	34.00
Female	227.00	188.00	89.00	75.00
n =	295.00	259.00	119.00	109.00

Present professional duties?

	98-99	99-00	00-01	01-02
Teacher	232.00	238.00	110.00	90.00
Home Schooler	7.00	5.00	1.00	12.00
Technology Program Coordinator	2.00	19.00	9.00	7.00
Principal	14.00	0.00	2.00	1.00
Math Coordinator	1.00	13.00	4.00	13.00
Science Coordinator	7.00	33.00	23.00	23.00
Librarian/Media Specialist	21.00	7.00	7.00	5.00
Community College Instructor	0.00	1.00	3.00	0.00
College/University Instructor	3.00	8.00	4.00	2.00
Distance Learning Coordinator	No Data	3.00	1.00	1.00
Curriculum Coordinator	No Data	10.00	2.00	5.00
Other	1.00	29.00	8.00	13.00

School Type

	98-99	99-00	00-01	01-02
College/University	2.00	7.00	1.00	1.00
Community College	1.00	1.00	1.00	0.00
Home School	6.00	7.00	1.00	12.00
Native American	No data	3.00	0.00	0.00
Private/Parochial	21.00	7.00	6.00	18.00
Public	266.00	232.00	111.00	78.00
n =	296.00	257.00	120.00	109.00

School Location

	98-99	99-00	00-01	01-02
Rural	102.00	89.00	38.00	39.00
Suburban	108.00	87.00	43.00	41.00
Urban	83.00	83.00	37.00	28.00
n =	293.00	259.00	118.00	108.00

Highest Degree

	98-99	99-00	00-01	01-02
High School Diploma	2.00	1.00	0.00	0.00
Associates (2 year)	2.00	3.00	0.00	5.00
Baccalaureate	85.00	77.00	30.00	47.00
Masters/Equivalent	200.00	160.00	70.00	52.00
Doctorate	8.00	6.00	3.00	1.00
Educational Specialist	No Data	12.00	13.00	6.00
n =	297.00	259.00	116.00	111.00

Ethnicity

	98-99	99-00	00-01	01-02
African American	22.00	16.00	14.00	7.00
Asian	1.00	3.00	0.00	1.00
Caucasian	258.00	223.00	101.00	90.00
Hispanic	8.00	5.00	3.00	3.00
Native American	2.00	2.00	0.00	2.00
Pacific Islander	0.00	1.00	0.00	2.00
Other	1.00	6.00	1.00	3.00
n =	292.00	256.00	119.00	108.00

Years as Educator

	98-99	99-00	00-01	01-02
Mean	16.30	14.95	17.78	13.29
Median	15.00	13.00	17.00	11.00
Standard deviation	9.19	10.26	8.81	9.90
Minimum	1.00	0.00	3.00	1.00
Maximum	49.00	55.00	34.00	35.00
Count	292.00	256.00	120.00	110.00

Longitudinal mean

15.58

Age

	98-99	99-00	00-01	01-02
Mean	44.94	43.90	45.85	45.82
Median	46.00	45.00	47.00	47.00
Standard deviation	8.70	9.10	7.96	7.99
Minimum	23.00	22.00	25.00	25.00
Maximum	75.00	62.00	60.00	60.00
Count	282.00	250.00	110.00	109.00

Longitudinal mean

45.13

Do you own a personal computer?

	98-99	99-00	00-01	01-02
Yes	270.00	241.00	113.00	108.00
No	26.00	15.00	7.00	1.00
n =	296.00	256.00	120.00	109.00

Member of a professional organization?

	98-99	99-00	00-01	01-02
Yes	159.00	192.00	87.00	68.00
No	138.00	63.00	30.00	41.00
n =	297.00	255.00	117.00	109.00

Years with NASA CONNECT™

	98-99	99-00	00-01	01-02
Mean	No data			
Median		1.10	2.44	1.15
Standard deviation		1.00	2.00	1.00
Minimum		0.55	1.28	0.67
Maximum		0.00	0.00	0.00
Count		4.00	8.00	4.00
		253.00	114.00	101.00

Longitudinal mean

1.56

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14. ABSTRACT NASA CONNECT™ is a research and standards-based, integrated mathematics, science, and technology series of 30-minute instructional distance learning (television and web-based) programs for students in grades 6-8. Respondents who evaluated the programs in the 2001-2002 NASA CONNECT™ series reported that (1) they used the programs in the series; (2) the goals and objectives for the series were met; (3) the programs were aligned with the national mathematics, science, and technology standards; (4) the program content was developmentally appropriate for grade level; and (5) the programs in the series enhanced and enriched the teaching of mathematics, science, and technology.						
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